The MINING CONGRESS JOURNAL

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AUGUST
1934

SENATOR M. M. LOGAN

Chairman of the Committee on Mines and Mining—

A message to the mining industry of the United States by Senator M. M. Logan, Chairman of the Mining Committee of the U. S. Senate, presented to the American Mining Congress Convention, Washington D. C., December, 1933.

"One thing that I request of you is that you keep yourselves informed as to legislation affecting your business that is pending in the Congress of the United States and that you advise me about it so I will know what it is and can consider it intelligently.

"It is your duty to submit briefs, to submit arguments, to submit facts, that can be used in arriving at a conclusion.

"If you come before my committee prepared to submit reasons to support your views, I can assure you that you will always receive consideration.

"We should strive diligently for such action as will rehabilitate your business and as long as you are heading in that direction I will be your servant and you may command me."

—From the Mining Congress Journal, January, 1934.

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The MINING CONGRESS JOURNAL

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A New Deal Outrage

DURING the last 25 years the South has developed more rapidly than any other part of the United States. During that period the South has expended millions of dollars in the construction of manufacturing plants, in the building of roads, and in the general improvement of its business enterprises.

One of the important incentives which has led to the location of manufacturing plants in the South has been the cheap power delivered to these plants by electric power transmission by public utility enterprises privately owned.

Now it is proposed to destroy these investments by Federal competition through the utilization of the Muscle Shoals Dam project, which grew out of the supposed necessities of the Great War.

Says the Government of the United States, through the Tennessee Valley Authority, to the Tennessee Public Service Company:

> *"Accept our offer for your plant or we will provide taxpayers' money to build a competing plant which will make your property entirely worthless."*

The language used was slightly more diplomatic but no less effective. The exact language follows:

> *"We are offering to buy all your electric property which you are in a position to sell at a price which covers the very maximum of value on which you have been earning a return.*
>
> *"Such consummation depends upon the approval of the city of Knoxville, and the willingness of bondholders to turn in their bonds at the issuing price of 96½ within three weeks. If by August 8 the company has not been able to get the bonds in at that price, there is no deal, and the city will then proceed to make an award for a new plant, bids on which are to be opened today.*
>
> *"The Tennessee Valley Authority has entered into these negotiations in an effort to find a peaceable and constructive way of carrying out a public purpose, a national policy declared by the people of the country through their President and their Congress."*

The writer has no brief for the power companies of the country, but he does believe that this interference with private enterprise is not only an outrage upon investors but will prevent future development; prevent the creation of new property subject to taxation, and gradually to break the country down to the level of reliance upon the Government for its daily bread.

The National Recovery Administration is now making a titanic effort to raise price levels. We have, on one hand, a nation, by autocratic edict, raising costs and urging consumers to buy from those who have increased costs at the Government's request, and upon the other hand a Government proposing to go into competition with business enterprises which have in the recent years shown a remarkable development, and which have brought untold benefit to the industrial life of the nation.

The Government proposes to enter the power producing business in competition with all power producing agencies and assumes that the election of the present administration is proof that the voters approved all the whims and fantasies of its brain trust.

By unlimited investment of noninterest-bearing money, under management of men already largely upon the public pay roll, the Government proposes to duplicate private power producing enterprises which have heretofore been so great a boon to industrial operations.

The demands of industry have been met with a service of power at rates *controlled by the state legislatures.* Brave indeed will be the entrepreneur in the future who dares to invest his money in any public utility enterprise if after investing his money he is to find himself facing Government competition.

Such a course can only be justified upon the theory that the people in the several states cannot be trusted to protect their own interests. To overcome this state incompetence the Federal Government proposes to create a Government monster monopoly with nontax-paying and noninterest-bearing capital.

This Government monopoly supported with taxpayers' money is to compete in a field of business already developed by private enterprise.

> *"When the Government once enters a business it must occupy the field alone. No one can compete with it. The result is a paralyzing monopoly."*

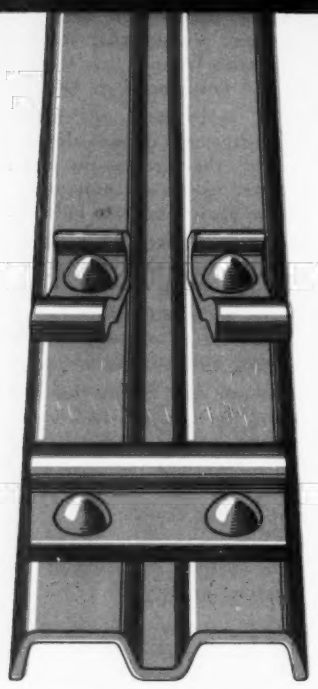
These wise words were expressed by Calvin Coolidge, then President of the United States. If the people of these United States desire to create a "paralyzing monopoly" the door has been legislatively opened to that course. That door leads to the ownership and operation of all public utilities.

It leads to a condition entirely revolutionary as it relates to those fundamental principles which have made the United States the greatest nation of the world. It leads to everything that we have not been, to everything which we have regarded as dangerous to our prosperity. Are we ready to take this step?

Well may we watch with jealous eye every Government movement looking to a destruction of taxpaying power. The present burdens upon the taxpayer greatly hamper his ability to conduct his business successfully.

To destroy taxpaying power upon one hand or to increase the burden of public expense upon the other are equally dangerous. To destroy the initiative of men willing to stake their own fortunes in the development of enterprises looking to public service is still more dangerous.

A Group of New



BETHLEHEM No. 2 STEEL MINE TIE—for rails weighing from 16 to 30 lbs. per yard. Weight of tie section, 2.50 lbs. per ft. The new No. 2 Tie is more than twice as strong as the old type, but weighs only 3 per cent more. Its light weight makes this tie ideal for room track.

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DEVELOPMENTS in mine mechanization have had an important effect on mine transportation systems. Large-capacity cars and track-type mechanical coal-cutting and loading machines have brought about the use of stronger track equipment and heavier rails. 30-lb. rails for room track, 40-lb. rails in entries, and proportionally heavier rails for main-haulage track, are being constantly put in service by low-cost producers.

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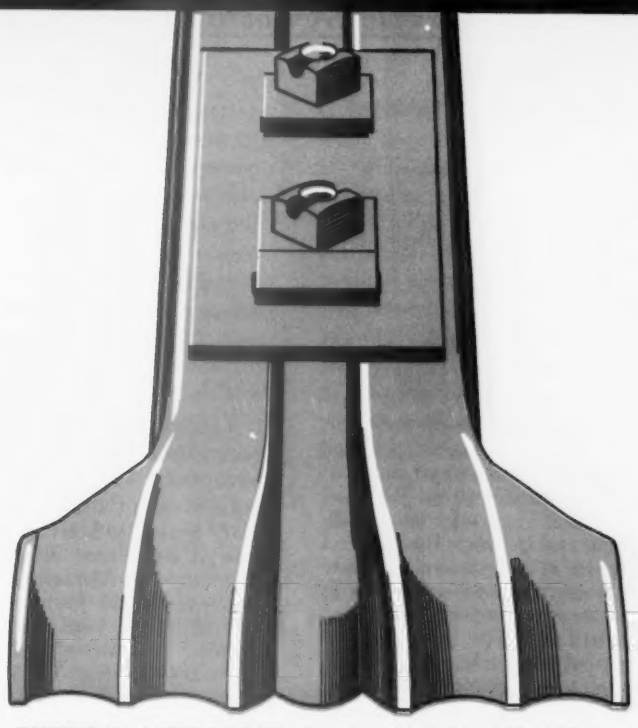

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Already these new steel ties are winning rapid acceptance by mine operators who appreciate the importance of strong track construction in the rapid, low-cost mining of coal. Good track, laid with steel ties, cuts costs per ton. Improve your haulage system by installing these new red ties. Whether equipment is old or new, the speed and efficiency of mine transportation can be decidedly stepped up, and operating and maintenance costs considerably reduced, by installing Bethlehem Steel Ties in your haulage system.

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A Journal for the entire mining industry published by The American Mining Congress

State Fascism

THE National Labor Relations Board which took office under the chairmanship of Lloyd Garrison, grandson of the abolitionist, on July 9, ordered as its first official act that the Regional Labor Boards formed under Senator Wagner's incumbency shall carry on. Industry had hoped that the old set-up would be abolished. The old National Labor Board and its field agencies, the Regional Boards, did little more than to add to the confusion of workmen. Industrial relations differences have in the past been settled at home within the industries affected and there is no reason why this practice shall not continue. It is understood that the number of the Regional Boards may be increased and that they may have additional agencies such, perhaps, as District Boards and Field Boards. Such treatment of a situation, already made bad by blundering, will constitute an open end for labor disturbances. Each little group of workmen who conceive some disaffection will rush to one of these agencies of the Federal Government after first instigating a strike as the basis for securing consideration of their grievances, real or alleged. The management of enterprise will be continually harrassed and to no benefit to the workmen. Such national trade unions as may at the present time need a semblance of discipline in their far flung organizations will find this discipline crumbling. The drift of this whole matter if permitted to take its present course will wind up in State Fascism.

Struggling But Hopeful

CONFIDENCE in the future must be determined before any comprehensive improvement toward better industrial conditions can be assured. Perhaps at no time in the history of the United States has its public sentiment been so bewildered, when so few men are able to predict as to what conditions will be a few months later. Perhaps in the past we have had too many men who believed their own construction of events was the last word and therefore were ready to predict future operations whether rightly or wrongly. At this time the men who have heretofore been very ready with predictions are attempting to so direct their own business affairs as to furnish protection no matter how the wind may blow.

The Code Authorities of many lines of business are finding new issues daily, some of which they are able to dispose of while others remain to plague, to annoy, and sometimes even to prevent successful continuance of the accepted rules. One day it is rumored that the AAA will shortly go out of the picture. The next day it is asserted that the AAA is here to stay, and that permanent social control of production will follow temporary successes in the handling of agriculture. The National Recovery Administration, after its effort to provide collective bargaining, increased wages, and shorter hours for those who labor, is sharply alive, by reason of the various labor strikes throughout the country, that even more is demanded. The business prosperity promised, while being partially realized, is now threatened with such labor disturbances as to threaten the failure of the entire structure. Great wisdom is required to predict the future. The question, "Whither are we going?" is hard to answer. It must be set down as a fact, however, that the American people have made many mistakes but in the end they have always solved their problems effectively, and we have every reason to believe that notwithstanding the present lack of confidence in the future, in some form and in some way the American nation will again right itself, business will be permitted to make a profit, labor will receive higher wages and continually better living conditions, and hours of service will be only such as are necessary to create the necessities and luxuries which a prosperous, industrious people are entitled to and are able to consume.

"Though the clouds are on the river,
Yet the sun shines on the hill."

The United States Bureau of Mines

EVERY indication points to a further attempt to make of the Bureau of Mines a political football. This in spite of the fact that it is no more a political adjunct than is the Geological Survey, the Bureau of Standards, or any other technical bureau. None of these bureaus seems to offer appetizing morsels for hungry "deserving party men." Only the Bureau of Mines is singled out as a desirable plum.

If the bureau must be subjected to political domination, the mining industry insists that in any change in directorship that it shall have a voice in the selection; that he shall be qualified technically and otherwise for the job; and that his selection shall be made after careful deliberation and consultation with the agencies involved, who, after all, are those who must be appeased . . . politically or technically or both.

The mining industry should demand that its affairs in Government shall be conducted with dignity, and that it be consulted about changes in its bureaus. The United States Bureau of Mines represents a great industry—one paying enormous taxes for the support of Government—and it is being treated most shabbily—not at all in accord with its importance.

Rights

THE seriousness of the strike situation throughout the nation has developed numerous arguments on the rights of labor and the rights of employers. Industry and labor in this country have grown strong under the sound principles laid down by our forefathers, which recognize the fundamental right of labor to refuse to work against its will, and the equally fundamental right of the employer to hire whom he chooses. Several years ago this magazine published what it then and still considers the primary principles involved. It repeats that statement:

"The RIGHT TO STRIKE is a qualified right, which ceases and becomes a conspiracy against the government when it interferes with the production and distribution of the necessaries of life."

Bureaucratic Government

NO problem has received more of critical consideration than that related to the exercise of governmental power through the various governmental bureaus. The wave of public criticism which is likely to follow the recent remarks of Senator Borah, while largely justified, is likely to lose sight of the fundamental fact that stability of government and the continued exercise of necessary government activities are based upon and carried on by the bureaus of the federal government.

The outcry should not be against bureaus as such, but against unwarranted activities of bureaus and particularly against the startling increase in their number. It is essential that we examine the structure of our government in order to determine what bureaucratic functions are essential, the extent of their functions and powers.

It is not so much the bureau form of government that is subject to criticism, as it is the tendency of the present administration to transfer the legitimate functions and activities of industry to Bureaucratic domination and control.

An Unbiased Government

A DISTINGUISHED American statesman in a time of great national stress once said, "I know no light by which my feet may be guided except the lamp of experience." It is most unfortunate that the New Deal could not have been guided by the sentiment so ably expressed by the patriot, Patrick Henry.

Under the New Deal explosive powers have been placed in the hands of unthinking people who do not comprehend the necessary result which must follow the use of explosives.

General Johnson, at San Francisco, when he looked upon the general strike, called it "civil war" and further said that, "The American people will not tolerate insurrection by such a general strike."

A letter from a western industrial leader, not only the friend of labor but a friend of organized labor, and who has had charge for many years of some thousands of employes, writes as follows: "I am becoming fearful of the whole governmental situation, the mistaken ideas planted in the minds of labor, the most dangerous situation now confronting the country."

No one can fairly question the right of labor to fight, to the limit, to secure its full share of the product of labor. The wages of labor must come from the laborer's earning and cannot permanently come from any other source. Upon the other hand, the effort of capital to protect its accumulation and to secure an earning thereon should meet the approval of the American people. The contest between these two interests is both natural and necessary because of the difficulty of ascertaining the exact earning power of each factor. The progress of the world is based upon the ambitions of each in its respective field, to secure personal benefit.

In the process of the adjustment, it is highly essential that Government should remain an unbiased arbitor.

Labor's Political Domination

ONE of the requirements for lending money to industry, under the RFC, is that a schedule of costs must be submitted. The Government not only insists upon limiting the salaries of executives of companies so borrowing, but permits no increases in expense without consultation of Government officials. This is the fartherest step taken looking to Government management of business.

When banks have attempted such practice they have been universally condemned. Will the public attitude toward this practice by Government be the same? Or will the industries submit because of inability to otherwise survive?

The question arises as to what the attitude of Government will be toward labor troubles in these Government-financed companies? Will they take the responsibility of vetoing labor demands, or will they submit to labor-domination? The answer seems fairly established by precedent, and we are led to the belief that Government will yield to the demands of labor because the voting power of labor is tremendous, and the only way politicians hold jobs is through votes.

No better example of the impracticableness of politician-management or control of business will be available during the next few years, than will these Government-financed industries.

Those Rumors

PRACTICALLY ever since General Johnson took over the business end of NRA, rumor has had it that he is resigning. When he is not resigning, he is being ousted. If, after the strenuousness of his exhausting job, he finds it necessary to rest, immediately the air is rife with the news that he is "out of NRA" and is taking this or that means of covering.

The action of the President in signing the Executive Order relating to service codes should end, temporarily at least, these rumors. The service codes are changed and modified to the extent that they may set up their own localized fair trade practices. This will entail further reorganization of the NRA, and organization has been the real field of the General. He is to approve the rules adopted by the various localities, and he is to designate which of the industries are to come under the term "service."

So, in the words of our esteemed contemporary, Congressional Intelligence, "it appears that the General has taken another year's lease on his offices in the Commerce Building, where the afternoon sun throws the shadow on his glass door of a large stuffed eagle arising to flight."

A Challenge to American Business

By FREDERICK M. DAVENPORT *

THE whole country has been concerned about a permanent basis of economic recovery for many months, at first emotionally, lately more thoughtfully. The economic crash has been so gigantic, the dislocation and suffering have been so great, that many have been quick to conclude that the old economic order in America, the era of so-called free and competitive private initiative was always without intelligent plan or social purpose or high human value, and is unfitted to survive. Of course it was not thus conceived by the great economists and statesmen who in this and other lands originally supported and promoted it. They thought of it as a means to the swift development of natural resources, to the rapid production and distribution of economic goods for the welfare of all. They never thought of it as a system of oppression or slavery.

As a result of a series of epochal events, remote in their cause but appearing plainly after the great war and moving with incredible speed, the economic machine itself seemed to millions suddenly to become an engine of oppression. It was not, however, for this purpose created, neither was that its effect upon the American people for generations. If we consider the years between 1860 and 1920 in America, was there ever a period in the history of the world when the common man advanced so fast and so far? There was social-mindedness in America and moral growth under the old economic order, antedating this generation.

Although I draw back not one inch in criticism of certain economic as well as human phases of what is now called the old order, nothing is to be gained by exaggeration nor by the stirring of dangerous prejudice and ill-will. We should never have been the country we were in 1920, if, in the earlier and simpler capitalistic period as well as in the later stage of corporate capitalism, there had not been in America a large number of men in business and government who were as genuinely devoted to the common welfare as any who now live.

Primarily what has happened to discredit the existing order, as I see it, is the partial human failure of fallible, finite beings, suddenly invested with authority over a system of economic power beyond the dreams of intellect or imagination; a system normally controlled by certain corporate and financial devices in the hands of relatively few persons, sometimes gifted and altruistic, and sometimes ruthless and selfish. Now the

* Former Congressman for New York—address delivered to Chamber of Commerce annual meeting.

machine has got out of hand. It will not give adequate employment to labor or capital. It permits devastating poverty in the midst of plenty. Its very surpluses of goods seem to add to the devastation, and increase the poverty.

But more than this has happened, as I see it. I do not trust that theory of explanation which imputes to American business leaders generally widespread misuse of power and lack of social conscience. That theory is too simple and there are too many examples to the contrary. I do think that in the mad rush of the last generation for great corporate and financial developments, big profits, big size, American business men have had too little time to give proper attention to the social consequences of what they were doing. It seems to me that business became the victim of what might be called the quota complex—greater production drives, greater efficiency in production, more high pressure salesmanship—always striving to reach the quota or extend it—more banks, more branches, more factories, more expansion. This complex has even entered into the educational system of the country. How may we teach everybody everything? How many students in the high schools? How many are going to college—quite regardless of whether many of them should go at all? Training youth for life has been treated as of less importance than enlarging the quota. So, quantity and mass production in business have received more attention than quality or human values. Power, fuel, transportation—the genii of the lamp—they have stirred our dreams. We have been on the way, "hell bent for election" as they say in Maine, but where have we been going?

We have been in a tremendous race to settle the country, organize its communications, develop its business. The recent swiftness of it is amazing. A large proportion of our land and business development seems to have come since 1900. But the pioneer rush is over. We have reached the point now where we can easily produce food and manufactured articles for a vast population.

As I understand it, the American people are now bent upon attempting to turn the resources of economic organization and energy and business leadership into the production on a wide scale, of life, liberty and happiness. They are done with putting profits and quotas first. The pioneer industrial stage is past. We will never go back to it. The war, the mania for bigness, the supermechanizations, the overbuilt facilities, the worthless securities, the speculative delusions, the swollen capitalizations, the mountains of indebtedness—these have not produced life, liberty and happiness. They have brought to many only increased suffering and loss.

There are still economic fatalists among American business men, who believe that we are going back over the same track, who are convinced that we are now about to enter upon another cycle of industrial advance, precisely like the older ones that have come and gone. But are there not factors in the present crisis that were never in a business cycle before? Have we not pretty well mastered the art of production? Is there any further need to cling to the quota complex and rush on and on? Are not the American people now bent upon attaining a richer life? I think they are. To many it may be a terrific wrench to change from the point of view of Ruskin's epigram — "Whatever we have, to get more; wherever we are, to go elsewhere!" — to change from eager accumulation and feverish unrest, to the conception of employing business skill and initiative and genius primarily to create economic security for the masses of the people. To become, instead of merely profit-seekers, faithful trustees of the forms of wealth without which human beings cannot live, presupposes an extraordinary change in human attitude. It may be asking too much of the human nature of American business men, although I do not think so. I am satisfied that such a change of human attitude would do more to maintain a sound economic and political order than any laws or remedies which may be devised. There are those who think that you cannot trust a banker to curb an orgy of speculation, that you cannot teach a capitalist intelligent selfishness, that the cynical question of Cain—"Am I my brother's keeper?"—must continue to pervade a machine civilization; that men are born greedy, grasping and profit-seeking and that you cannot change human nature.

A change in human attitude does not necessarily involve a change in human nature. It is probably true that the foundation structure of human nature changes very slowly, that the brain power and intelligence of Athens were as great as ours; but there is no ground for believing that greed and selfishness and all uncharitableness are original and permanent qualities of human nature. Unselfishness in this world began to put up a great fight in the soul of the first human mother and it has been slowly winning ever since. Certainly within their own community life such primitive people as the Iroquois Indians long ago exhibited more of the original traits of human nature—neighborliness and kindness and sharing one another's burdens—than any modern society whatever. I am skeptical of the fatalists who cynically think that nothing can be done about it, that we shall soon be back in the old order. Of course we are bound to recognize the power of blind economic cycles and oscillations, but why contend that they cannot be slowly modified and mastered and made to serve the world through the superior power of the reason and the heart of man?

New laws and remedies, codes and programs and governmental disciplines have their place, but they are relatively ineffective unless they are energized by a right economic philosophy and a right human attitude. Now business men are naturally leaders in their separate communities. The president of a great corporation may have in any local community greater influence than a public official, if his power is rightly exercised. The sad fact is that business and financial leaders as a class have been hurt in their influence and power, not alone by the moral failure of the few, but by an unwillingness on the part of many to face the new conception of society and of life which is affecting the human mind throughout the world.

The changing order needs the wholehearted sympathy and guidance of the American business man. Upon him depends whether we keep what we have, the ripe economic experience and skill of the past, or whether like Russia we repudiate and ostracize the business man and begin the industrial process all over again. That, it seems to me, would be a terrible waste. Whether our present economic miseries turn out to be a vantage point in the evolution of human society, depends upon the American business leader. Upon his attitude depends whether industry will accept with sufficient promptness the new human and economic creed which in our time is being written in the hearts and consciences of men; namely, that capital must receive less and laborers and consumers more; that bonuses have an unparalleled value in goodwill only when they are shared by executives with workers; that unemployment reserves and sickness and old age benefits must be universal; that, without subscribing to the high money wage theory or any other theory, it is the purchasing power of the millions, the well-being of the millions, which makes a country great, and permits a highly developed business system to function and be profitable; that in a land of plenty it is the duty of economic organization to bring about a fair distribution of the huge supplies of goods produced by modern mechanization and science and engineering; and that the only justification for any economic and social order is that it promotes the welfare of human beings.

It appears that there is none too much time to push such a creed into general practice. There are signs and portents among us that are not so reassuring for economic and political democracy. There is too much ill-will, too much resentment, too much hate. In a period when so many have lost all, we are too glad to hear that someone else is hurt, too. We rejoice in finding fault. We criticize freely without knowledge of the facts to justify it. Grand juries indict and bring in recommendations with very much less information than would warrant it. If newspapers publish the deeds of any good man, few read it. We want scandal and sensation. We are uneasy and unlovely. We are hot on the trail on Capitol Hill at this moment for a wide publicity of private incomes. I can understand that the publicity of corporate incomes, under wise restraint, is in the public interest. But save in exceptional circumstances and under rigid regulation, I cannot conceive of the publicity of private incomes throughout

America doing anything else but play into the hands of the kidnaper and the blackmailer or the sucker list of the stocksalesman.

We are rapidly losing the old sense of personal responsibility and thrift. There are those who now preach that thrift is immoral, and millions practice the new theory. Regardless of the historic fact that civilization and democracy never started until there began to be a social surplus; regardless of the fact that machines and other capital goods will continue to wear out and somebody or something will have to save in order to replace them; regardless of the fact that thrift was the first aid in building the character of early America, there are many who have begun to look at least upon individual saving as anti-social. Multitudes have become less self-respecting, more inclined to lean upon other people and upon government. There is a reason for it. You cannot shake from center to circumference the sense of security of 85 percent of the population of the country, who have their slender lifetime accumulations for themselves and their children in insurance companies, and savings and commercial banks, and building and loan associations, without paralyzing thrift to an unfortunate degree. I venture the opinion that we shall not have anything like a complete return to what still seems to me to be the sturdy virtue of restraint in spending and care in saving, until the burdening sense of injustice, of insecurity and benumbing economic fear is rolled away. Certainly the happiness and safety of the country will be advanced when men become once more disinclined to take advantage of easy bankruptcy, begin again to pay their bills and be proud of it, and look upon strangling indebtedness for what it is, a millstone about the neck of citizen or nation.

We see the country inflamed with the spirit of getting something for nothing in the stock exchange, where you may have by all odds the worst form of gambling, because it involves not simply the welfare of the gambler and his family, but the welfare of all the human beings in the country and ruins thousands of people who never gambled in their lives and never wanted to gamble.

There are other uncomfortable portents. One of them is the growth of an embargoistic nationalism among us. I mean a nationalism that would wall us off from the rest of the world in trade and commerce. I am a protectionist on principle. So far as I can make out, almost everybody is now. All the old free-trade professors are looking for jobs. Nobody will hire them or listen to them. But one thing I thought I learned on the Ways and Means Committee of the House of Representatives in a year and a half of agonized testimony and agonizing preparation of the last tariff bill; namely, that there is at the base of our industrial structure a sub-margin of protected inefficiency and incompetence, which the country could do without to its own advantage and to the advantage of foreign trade. I do not know how wide that belt of incompetence that we are protecting may be. Careful inquiry might determine. Careful provision would have to be made for the absorption of its labor into other fields. But the way might be opened for a certain natural percentage of export and import trade which would ease both the industrial and agricultural strain at home and have favorable reactions abroad. Certainly it is just as logical and important to take out of protection the sub-marginal factory as it is to take out of production the sub-marginal land. Both of them, it seems to me, are deadening to national progress, profit and peace. A moderate nationalism is in the interest of ourselves and the world; an embargoistic nationalism, that walls us off from the rest of the world, has no good in it for anybody. It contributes to the regimenting and lowering of the standards of living at home and to the creating of unnecessary ill-will abroad.

Also there is a hot controversy going on among us about regimentation and freedom. We have been in some danger of the night-riding spirit of bureaucratic conformity, but we are getting over that. What do you think and what do I think and what do we all think is becoming again a matter of national concern. Nobody wants bureaucratic regimentation, but nobody wants private economic serfdom for workers and consumers either. The government has its job to do, and the world is too young for business to go on its unbridled way. But we need have neither governmental regimentation nor private serfdom, if a new, healing human attitude of American business guides the economic organization of the country into production on a wide scale of life, liberty and happiness for all our people.

I venture to say that the sort of spirit back of the recent May-day tribute to George F. Johnson, the shoe manufacturer of Binghamton, when 20,000 of his workers marched in honor of his life-long devotion to his people—not in protest or discontent, but in gratitude to the country in which they live and labor—is worth more to the future of America and American industry than all the laws and remedies of Congress, important though some of them may be.

One great gain from the recent assembling of business leaders in Washington for the preparation of codes has been that for the first time men have had a glimpse of their business in relation to the whole industry of which they are a part, and to the whole economic system of the country and the world. They have witnessed the beginning of the passing of child labor and the sweat shop. They have seen exploitations and cut-throat competition put under the ban. Much traditional suspicion has evaporated. The older maxim that public office is a public trust has been broadened into the nobler maxim that private office also is a public trust. If our economic leaders have learned this, if they have become conscious that they are first of all not business men, but citizens, much will have been gained, even though it may happen that the present formulas for national recovery are inadequate.

We have yet far to go and the way is hard. There is need for all the financial insight and administrative capacity that the country can supply. Any national plan or program needs economic underpinning as well as social urge. It is good to pass prosperity around, but that cannot be done unless there is prosperity to pass around—thus observed a great square deal President of a little more than a quarter of a century ago. It would be a calamity if a failure to regain the confidence of the people should prevent the patriotic service of American business in the new epoch.

The world gets on, as George Eliot said, by the help of those who live faithfully the hidden life and rest in unvisited tombs. But the pace is tremendously quickened by the help of those who have unusual energy, native ability, executive initiative, genius and character. There is no question about the will and courage of American business, which have tunnelled mountains, bridged rivers and organized the financial operations of a vast world war. But it is not simply will and courage that are needed in the present crisis, but friendliness for the spirit of the age—a touch of the sympathy of the greatest popular leader who ever lived, who came not to be ministered unto, but to minister.

It is an incomparable challenge to business and political leadership; not

(*Concluded on page* 37)

Chino Mine of Nevada Consolidated Copper Company

METALS

Western Division, Annual Convention, at San Francisco, California

FEATURES OF ANNUAL MEETING
WESTERN DIVISION
THE AMERICAN MINING CONGRESS

San Francisco, California,

September 24-29, 1934.

(1) An outstanding program, presenting vitally important subjects by leading mining men and notable government officials.

(2) An exposition of mining machinery and supplies, showing the newest products of manufacturers serving the industries.

(3) A special feature presentation by the thirteen western mining states, showing by graphic means for each state and collectively: number of mines, number of men employed, annual payroll, annual state and national tax, industries dependent upon mining for existence, communities dependent upon mining, annual expenditures for equipment and supplies.

(4) A program of entertainment arranged by a distinguished local mining group, including two days of special trips to points of interest in and around San Francisco.

CALIFORNIA has again been selected for the annual meeting of the Western Division of The American Mining Congress. This large group held one of its most successful meetings at Sacramento, Calif., in 1924, and has long been anxious to return to the "Gold" State. This year, because of the revival of gold mining within the state, San Francisco was selected, and it is anticipated that the meeting will be a repetition of the 1924 success.

The so-called "Western Division" of The American Mining Congress is in reality its metals group and includes the producers of copper, lead, zinc, silver, iron, gold and miscellaneous minerals and non-metallics. It represents a very large percentage of the total metals production of the United States, having chapters or affiliated organizations in each of the 13 western mineral producing states.

Mr. Wm. S. Boyd, vice president, Utah Copper Company and Nevada Consolidated Copper Corporation, is the national chairman of the Division, and is ably assisted by the following Board of Governors:

ALASKA—Ernest N. Patty, dean, Alaska School of Mines; Chas. D. Garfield, secretary, Alaska Chamber of Commerce.

ARIZONA—T. H. O'Brien, general manager, Inspiration Cons. Copper Co.; Wm. Koerner, governor, Arizona Chapter, A. M. C., and general manager, Magma Copper Co.

CALIFORNIA—Philip Wiseman, president, United Eastern Mining Co.; G. Chester Brown, secretary, Calif. Metal & Mineral Prod. Assn.

COLORADO—R. M. Henderson, chairman, Colorado Metal Mining Fund; Robt. S. Palmer, secretary, Colorado Chapter, A. M. C.

IDAHO—A. P. Ramstedt, vice president, Tamarack & Custer Mng. Co.; J. F. McCarthy, president, Hecla Mining Co.

MONTANA—W. B. Daly, assistant manager of mines, Anaconda Copper Mng. Co.

NEVADA—J. C. Kinnear, Nevada Cons. Copper Corp.; Henry M. Rives, secretary, Nevada Mine Operators Assn.

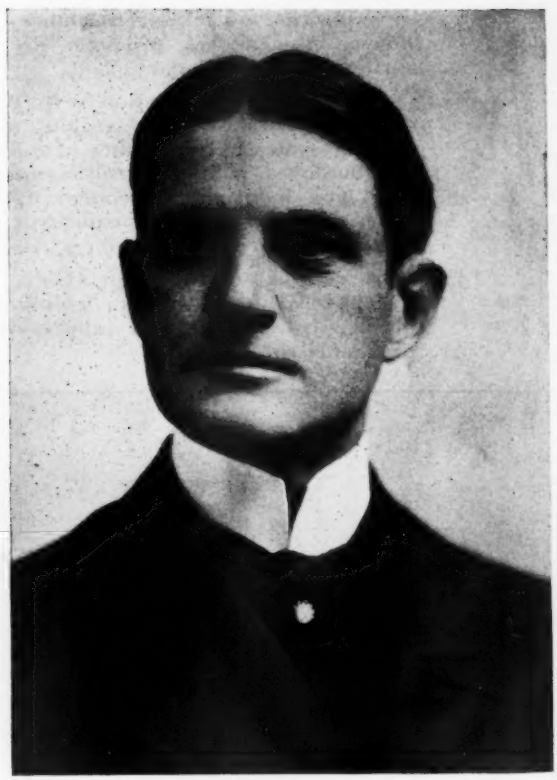
OREGON—Robt. M. Betts, president, Cornucopia Mines Co.; A. W. Strowger, attorney.

OKLAHOMA—M. F. Owens, president, Tri-State Zinc & Lead Ore Prod. Assn., and manager, Black Eagle Mng. Co.; M. D. Harbaugh, secretary, Tri-State Zinc & Lead Ore Producers Association.

W. S. BOYD

National Chairman
Board of Governors,
Western Division

National Chairman
Program Committee, Western
Division Meeting



W. MONT FERRY

Brent N. Rickard

Frank M. Smith

J. C. Kinnear

Stanly Easton

Cooperating
In the
Development
of the Program
and Convention

D. D. Moffat

Oscar N. Friendly

William Daly

R. M. Betts

SOUTH DAKOTA—B. C. Yates, general manager, Homestake Mining Co.

TEXAS—Brent N. Rickard, manager, El Paso Smelting Works, American Smelting & Refining Company; Howard H. Fields, American Smelting & Refining Co.

UTAH—J. W. Wade, governor, Utah Chapter, A. M. C., and vice president, Tintic Standard Mng. Co.; A. G. Mackenzie, secretary, Utah Chapter, A. M. C.

WASHINGTON—Milnor Roberts, University of Washington.

The purpose of the Division is to act as a clearing house of information upon all those problems affecting the industries, which are of common origin, and to develop a unity of thought and action upon issues demanding the attention of the group.

Mr. W. Mont Ferry, vice president, Silver King Coalition Mines Company, Salt Lake City, Utah, nationally known mining man, actively associated with and interested in the silver situation, is the national chairman of the Program Committee which is developing an outstanding program for the meeting, to be held at the Palace Hotel, San Francisco, Calif., September 24 to 29, inclusive.

Working with Mr. Ferry in the development of the program are the following mining men:

ARIZONA—T. H. O'Brien, general manager, Inspiration Cons. Copper Co., Inspiration; Robt. E. Tally, United Verde Copper Co., Clarkdale; Ross D. Leisk, vice president, United Verde Extension Mng. Co., Jerome; Wm. Koerner, general manager, Magma Copper Co., Superior.

CALIFORNIA—Dean Frank H. Probert, College of Mining, University of California, Berkeley; H. W. Gould, H. W. Gould & Co., Mills Bldg., San Francisco; I. Ballard, secretary, National Quicksilver Producers Assn., San Francisco; W. S. Boyd, vice president, Utah Copper Co. and Nevada Cons. Copper Corp., San Francisco; W. Val DeCamp, general manager, Cardinal Gold Mng. Co., Bishop.

COLORADO—Chas. A. Chase, general manager, Shenandoah-Dives Mining Co., Silverton; Geo. H. Rupp, manager, Mining Dept., Colorado Fuel & Iron Co., Pueblo; Jesse F. McDonald, manager, Down Town Mines Co., Leadville; Robt. S. Palmer, secretary, Colorado Chapter, A. M. C., Denver; John G. Clark, Tungsten Production Co., Inc., Boulder.

IDAHO—Stanly A. Easton, president, Bunker Hill & Sullivan Mng. & Conc. Co., Kellogg; J. F. McCarthy, president, Hecla Mining Co., Wallace; Axel P. Ramstedt, vice president, Tamarack & Custer Cons. Mng. Co., Wallace.

MONTANA—Wm. B. Daly, asst. mgr. mines, Anaconda Copper Mining Co., Butte; Dr. Francis A. Thomson, president, Montana School of Mines, University of Montana, Butte; J. D. Mackenzie, manager, American Smelting & Refining Co., East Helena.

NEVADA—J. C. Kinnear (*state chairman*), general manager, Nevada Cons. Copper Corp., McGill; Henry M. Rives, secretary, Nevada Mine Operators Association, Reno.

NEW MEXICO—R. B. Tempest (*state chairman*), general manager, Chino Mines, Nevada Cons. Copper Corp., Hurley; Dr. E. H. Wells, president, New Mexico School of Mines, Socorro; Ira L. Wright, general manager, Black Hawk Cons. Mines Co., Silver City; C. A. Pierce, general superintendent, United States Potash Co., Carlsbad.

OREGON—Robt. M. Betts, president, Commercial Mines Co., Blackbutte.

TEXAS—Brent N. Rickard (*state chairman*), manager El Paso Smelting Works, American Smelting & Refining Co., El Paso; J. S. Cullinan, Petroleum Bldg., Houston; H. P. Henderson, president, Texas Mining & Smelting Co., Laredo.

UTAH—Oscar N. Friendly (*state chairman*), treasurer and assistant general manager, Park Utah Cons. Mines Co., Salt Lake City; E. A. Hamilton, general manager, U. S. Smelting, Refining & Mining Co., Salt Lake City; D. A. Lyon, director, Utah Engineering Experiment Station, University of Utah, Salt Lake City; J. O. Elton, manager, International Smelting Co., Salt Lake City; W. J. O'Connor, manager, Utah Dept., American Smelting & Refining Co., Salt Lake City; Jas. W. Wade, general manager, Tintic Standard Mining Co., Salt Lake City.

WASHINGTON—Dean Milnor Roberts, Head of Mines Dept., University of Washington, Seattle; Frank M. Smith, Bunker Hill and Sullivan Mining Co.

THE PROGRAM

This committee has been actively at work since the first of June and has made rapid strides in the arrangements for the papers. A questionnaire was mailed by Mr. Ferry to more than 4,000 mine operators, asking their views as to those subjects that could profitably be discussed at the meeting. The result was a deluge of topics, each of special importance, either nationally or locally, to the mining industry. Faced with the necessity of selection, Mr. Ferry and his committee have developed a program that will be of interest to every operator in the mining industries, and many of the leading mining men from the East will be present and participate in the discussions.

The program as tentatively arranged is presented herewith.

Cooperating with Mr. Ferry and his committee Mr. W. S. Boyd has given yoemen service and is in charge of the special local committees who will serve as hosts to the delegates. The local committee, appointed by Mr. Boyd, is as follows:

Committee on Arrangements—C. B. Lakenan (chairman), Nevada Consolidated Copper Corp.; Ira B. Joralemon.

Committee on Reception—R. A. Kinzie (chairman), chairman, San Francisco Section, A. I. M. M. E.

Committee on Trips — Charles S. Knight (chairman), secretary, Industrial Committee, State Chamber of Commerce; G. Chester Brown, secretary, California Metal & Mineral Producers Assn.

Committee on Annual Dinner—Wm. E. Colby (chairman), attorney-at-law; Henry M. Rives, secretary, Nevada Mine Operators Assn.

Committee on Publicity—W. W. Bradley (chairman), state mineralogist.

Committee on Exhibits—A. J. Maclean (chairman), general purchasing agent, Nevada Consolidated Copper Corp.

Committee on Ladies Entertainment—Mrs. W. S. Boyd (chairman), Mrs. D. C. Jackling.

THE EXPOSITION

In conjunction with the convention and supplementing it, is the Exposition of Mining Machinery and Supplies. This is the second exposition ever to be staged by this group, the first being at the previous California meeting. It will be held at the Palace Hotel, in the rooms immediately adjoining the meeting room, and already is an assured success with the allotment of space to such well known firms as: Mine Safety Appliances Company, General Electric Company, Timken Roller Bearing Company, National Carbon Company, Jeffrey Manufacturing Company, Allen-Sherman-Hoff Company, American Manganese Steel Company, American Wire Cloth Company, and others, whose reservations are tentative.

An interesting feature of the exhibit is that sponsored by the states represented in the Division, where, in approximately 1,200 square feet of floor space, they will present through graphic charts and otherwise complete information on (1) number of mines in state represented, (2) number of men employed, (3) annual pay roll, (4) annual state and national tax paid, (5) number of communities dependent upon mining for existence, (6) industries dependent upon products of the mines, (7) amount spent for equipment and supplies, and such other information as will enable the public to get a true picture of the magnitude and importance of the industry.

The meeting promises to be an outstanding one; notable speakers, splendid attendance, excellent exposition, and interesting entertainment sponsored by the local operating men. Mrs. W. S. Boyd, in cooperation with Mrs. D. C. Jackling, will be hostess for the visiting ladies. Special trips to points of interest are being arranged for September 28-29, which will probably include a trip to the Mother-Lode territory, early gold mining district, where a revival of mining activity is in full swing.

Every mining man interested in the future of the metals industry should make it a point to be present at the meeting.

Tentative Program

Monday, September 24

REGISTRATION

OFFICIAL INSPECTION OF EXHIBITS

OPENING OF CONVENTION

LUNCHEON MEETING—Introducing:

HOWARD I. YOUNG
President, The American Mining Congress

W. S. BOYD
Chairman, Western Division

W. MONT FERRY
Chairman, Program Committee

J. F. CALLBREATH
Secretary, The American Mining Congress

FIRST SESSION

CHAIRMAN: W. S. BOYD
Vice President, Utah Copper Company and Nevada Consolidated Copper Corp.

Appointment, Resolutions Committee

REHABILITATION OF NON FERROUS METALS
By W. MONT FERRY, *Vice President, Silver King Coalition Mines Company.*

ADMINISTRATION OF SILVER BILL
By THE HONORABLE KEY PITTMAN, *Senator from Nevada*

TRENDS OF THE TIMES
By HOWARD I. YOUNG, *President, American Zinc, Lead and Smelting Company.*

Tuesday, September 25

SECOND SESSION

CHAIRMAN: J. F. MCCARTHY,
President, Hecla Mining Company

MINERS' RIGHTS TO SUB-SURFACE WATERS ENCOUNTERED DURING MINING OPERATIONS
(Topic to be announced)

First Report, Resolutions Committee

ROUND TABLE DISCUSSION NO. 1.
Trends in Social Legislation
HOWARD I. YOUNG, *Presiding*

THIRD SESSION

CHAIRMAN: GOVERNOR MORLEY GRISWOLD
State of Nevada

BENEFITS TO MINING INDUSTRY BY U. S. BUREAU OF MINES EXPERIMENT STATIONS
By DR. F. A. THOMSON, *President, Montana School of Mines, University of Montana.*

WESTERN MINERAL INDUSTRY AND DISTRIBUTION AND UTILIZATION OF POWER FROM FEDERAL PROJECTS
By EDWARD SNYDER, *W. F. Snyder & Sons.*

GOVERNMENT POLICY TOWARD WESTERN MINERAL STATES
By (Representative of the Interior Department)

THE PROBLEMS OF THE GOLD MINING INDUSTRY
By CHAS H. SEGERSTROM, *President, Carson Hill Gold Mining Co.*

Wednesday, September 26

FOURTH SESSION

(Operating Problems)

1. Gold
2. Lead—silver
3. Copper.

Papers to be announced.

ROUND TABLE DISCUSSION NO. 2
Trends in Social Legislation—

FIFTH SESSION

CHAIRMAN: CHAS. A. CHASE
General Manager, Shenandoah-Dives Mining Co.

TAXATION OF MINES AND THE LAW OF DIMINISHING RETURNS
By PAUL H. HUNT.

THE PROBLEMS PRESENTED BY THE NEW REVENUE LAW
By A. W. DICKINSON, *The American Mining Congress.*

Thursday, September 27

SIXTH SESSION

TARIFF AND THE METAL INDUSTRIES

THE WEST AND STRATEGIC WAR MINERALS

THE METAL INDUSTRIES AND THE NEW DEAL

ROUND TABLE DISCUSSION NO. 3
The New Deal

SEVENTH SESSION

INDUSTRY'S RESPONSIBILITY

THE METAL INDUSTRIES AND NATIONAL PROSPERITY

PRACTICAL APPLICATION OF CODES
Speakers to be announced later.

REAL NEED FOR CENTRALIZED COOPERATIVE ACTION
By W. S. BOYD, *Vice President, Utah Copper Company and Nevada Consolidated Copper Corp.*

ANNUAL DINNER

The Honorable W. E. COLBY, *Toastmaster*
Introduction of guests of honor, including distinguished members of mining fraternity, Governors of western states, and state, federal and city officials.

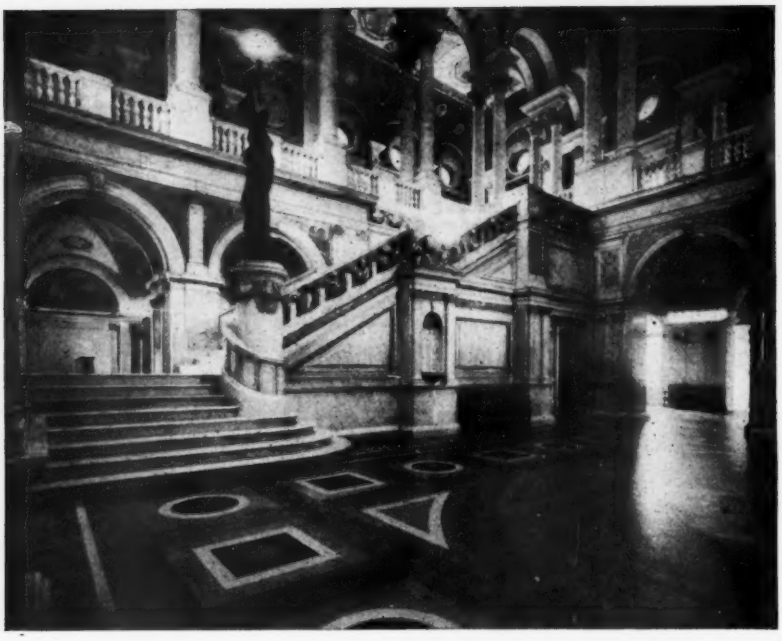
Dancing—Entertainment.

Friday, September 28

Conference of presidents and secretaries of all western mineral organizations, for development of Ways and Means Committee to most effectively utilize the deliberations of the convention.

TRIPS

On Friday, September 28, and Saturday, September 29, the local committee in charge will provide various elective trips for those attending the conference, which will embrace visits to nearby points of interest adjacent to San Francisco and to the Mother Lode country of California, if that be desired.



Legislative Review

WHILE Congress has adjourned, politics has not. The Washington political situation is even hotter than the weather, which has set all-time records. The political situation bids fair to rival the weather man.

The Alphabet Parade hums merrily although the controlling heads, from the President of the United States down to chairmen of investigating committees are taking well earned vacations. Washington has been going full steam ahead for a year and a half and rest was essential to these key men who have been taxed to capacity. Nevertheless a visit to the huge quarters of the NRA indicates no lessening of activity. The corridors still resound to the echoing footsteps of the harrassed business man who either has a code and does not know what to do with it; or who is seeking to develop a code under which his industry can work; or, is investigating just what the general code means insofar as his company is concerned. The NRA, the AAA, the RFC, the Commissions, Bureaus, or what have you, still maintain their status as the National Crossroads.

In summing up the activities of the 73rd Congress, we find that in the House the measures introduced number 10,848 and in the Senate 4,253. About 1/15 of these measures became law, the balance falling by the wayside in the numerous traps and backwaters. Nine hundred seventy-six laws were enacted by Congress. Of this number the public laws amounted to 487; the public resolutions, 53; the private laws and resolutions, 436. Of passing interest is the following tabulation of laws enacted by the recent sessions of Congress:

73rd Congress	976
72nd Congress	843
71st Congress	1,524
70th Congress	1,722
69th Congress	1,423
68th Congress	996
67th Congress	931

In the measures enacted by the 73rd Congress the Senate originated 410 and the House of Representatives 566. Seventy-two presidential vetoes accounted for that number of bills with the exception of the independent offices appropriation bill which contained provisions regarding pay cuts affecting veterans and Federal employes and which was passed by Congress over the executive veto. Outstanding in their immediate and potential effect on the well being of the mining industries of the United States were certain laws now in process of administration and upon which it is well to note the present status of that administration by those charged with the responsibility.

Reciprocal Trade Treaties

When on June 12, 1934, the President approved the act to amend the Tariff Act of 1930, the committee heading up in the Department of State moved immediately toward the execution of the ideas which had prompted the enactment of the law. The membership of the committee having charge of the Foreign Trade Agreements is made up of representatives of the Departments of State, Commerce, Agriculture and Treasury, the Tariff Commission and the office of the Special Advisor to the President on Foreign Trade. Assistant Secretary of State Francis B. Sayre is named as the temporary chairman and will, under the Secretary of State, be in general charge of the negotiation of the proposed Foreign Trade Agreement. As stated in a Department of State release under date of June 29, 1934—"The function of the committee will be to arrange for such general economic studies as may be deemed necessary in connection with the reciprocity program, as well as studies relating to particular negotiations; to advise in selecting the committees for negotiation; and in general to coordinate the work of the governmental agencies concerned." The release further states: "It is expected that the detailed work connected with the drafting of the Foreign Trade Agreements and the carrying on of preliminary technical discussions with the experts of foreign governments will be done by special inter-departmental committees, one for each country concerned, and these will function under the supervision of the Committee on Foreign Trade Agreements." On June 29 the Department of State also made public the Executive Order signed by the President on June 27, 1934, and which is, because of its vital significance, herewith reproduced:

Executive Order: Public notice and presentation of views in connection with foreign trade agreements.

WHEREAS section 4 of the act of Congress approved June 12, 1934, entitled "An Act to amend the Tariff Act of 1930" provides:

Sec. 4. Before any foreign trade agreement is concluded with any foreign government or instrumentality thereof under the provisions of this Act, reasonable public notice of the intention to negotiate an agreement with such government or instrumentality shall be given in order that any interested person may have an opportunity to present his views to the President, or to such agency as the President may designate, under such rules and regulations as the President may prescribe; and before concluding such agreement the President shall seek information and advice with respect thereto from the United States Tariff Commission, the Departments of State, Agriculture and Commerce and from such other sources as he may deem appropriate.

Now, Therefore, I, Franklin D. Roosevelt, President of the United States of America, acting under and by virtue of the authority vested in me by the aforesaid section, prescribe the following procedure with respect to the giving of public notice of the intention to negotiate trade agreements and with respect to the granting of opportunity on the part of interested persons to present their views:

1. At least 30 days before any foreign-trade agreement is concluded under the provisions of the act notice of the intention to negotiate such agreement shall be given by the Secretary of State. Such notice shall be issued to the press and published in press releases of the

Department of State, the Weekly Treasury decisions, and Commerce reports.

2. Persons desiring to present their views with respect to any such proposed agreement shall present them to a committee to be known as the Committee for Reciprocity Information. Said committee, hereinafter referred to as the committee, shall consist of members designated from the personnel of their respective departments or offices by the Secretary of State, the Secretary of Agriculture, the Secretary of Commerce, the National Recovery Administrator, the chairman of the Tariff Commission, the special adviser to the President on Foreign Trade, and the heads of such other Federal departments or offices as may be named from time to time by the Executive Committee on Commercial Policy. The committee shall function under the direction and supervision of, and its chairman shall be designated from among the members of the committee by, the Executive Committee on Commercial Policy.

3. The form and manner in which views may be presented, the place at which they shall be presented, and the time limitations for such presentation shall from time to time be prescribed by the committee which may designate such subcommittees as it may deem necessary.

(Signed) *Franklin D. Roosevelt.*

Thereafter on July 3, the Department of State announced the creation and initial meeting of the Committee for Reciprocity Information, the personnel of which is as follows:

Thomas Walker Page, vice chairman, United States Tariff Commission;

Robert Frazer, American Consul General, Department of State;

Leslie A. Wheeler, in charge Division of Foreign Agricultural Service, Department of Agriculture;

Henry Chalmers, chief, Division of Foreign Tariffs, Department of Commerce (acting);

John Lee Coulter, former member of the United States Tariff Commission, and now connected with the office of the Special Adviser to the President on Foreign Trade; and

H. D. Gresham, acting chief, Imports Division, National Recovery Administration (acting).

On July 3, the Committee for Reciprocity Information adopted regulations announced to be "for the guidance of persons desiring to present their views in connection with any proposed trade agreement." These regulations as announced are presented below:

"Pursuant to Section 4 of the Act of Congress approved June 12, 1934, entitled "An Act to Amend the Tariff Act of 1930" and Executive Order No. 6750 of June 27, 1934, the following form, manner, and time limitations with respect to the presentation of information and views by persons interested in the negotiation of any foreign trade agreement are prescribed:

"*Form and Manner of Presentation.* Information and views shall be presented to the chairman, Committee for Reciprocity Information, United States Tariff Commission, Washington, D. C., in the form of written statements. Such statements shall be duly sworn to and shall be either typewritten or printed, in sextuplet, and each of the six copies shall be legible. If the statements relate to duties or other trade restrictions affecting more than one product, each product must be treated separately and statements with respect to each product shall begin on a separate page.

"*Supplementary Oral Presentation.* Supplementary views may be presented orally only upon application to the chairman and after written statements have been submitted in proper form. Such application may be made in writing to the chairman and shall set forth concisely the reasons therefor. Also the application shall state whether it is desired to present supplementary information and views concerning tariffs or other trade restrictions of the foreign country with respect to which the Secretary of State has given public notice of intention to negotiate a foreign trade agreement or concerning tariffs or other trade restrictions of the United States. The committee will consider the application and inform the applicant whether or not it is approved.

"Oral statements shall be made under oath.

"Any oral presentation of views hereunder shall not be in the nature of a public hearing.

"*Time Limitations.* The time limits within which information and views in writing and applications for supplemental oral presentation of views shall be submitted as well as the time for supplemental oral presentation of information and views, will be prescribed by the committee in connection with each proposed foreign trade agreement, and will be made public in behalf of the committee by the Secretary of State simultaneously with his notice of the intention to negotiate each proposed agreement."

Also on July 3 over the signature of Wilbur J. Carr, Acting Secretary of State, public notice was given of the intention to negotiate a Foreign Trade Agreement with the government of the Republic of Cuba. This notice in part reads as follows:

"The Committee for Reciprocity Information has prescribed that all information and views in writing and all applications for supplemental oral presentation of views shall be submitted to the chairman of said committee, care of the United States Tariff Commission, not later than 12 o'clock, noon, July 21, 1934. Oral presentation of views by persons where applications therefor have been approved will be heard July 23, 1934."

It is of interest to note that those who proceeded to the hearing room in the U. S. Tariff Commission Building in Washington were asked by the Secretary of the committee if they had any specific material to present in connection with the proposed Cuban treaty. No announcement had been made nor was any information available as to the detail of the proposed treaty or as to what products, metals, minerals, etc., would be affected. Permission to enter the hearing room was denied to anyone who did not certify that he had a specific presentation to make. On July 26 an Associated Press dispatch announced that the Cuban Tariff Treaty was ready for signature. Inasmuch as the last item upon which a presentation was made to the committee was salt, the press dispatch in part read as follows:

"The proposed reciprocal trade agreement with Cuba, which has been regarded as a cut-and-dried proposition, finally was salted down yesterday for signature and proclamation by Secretary of State Cordell Hull after a suitable curing period.

"Few changes in the draft were anticipated, as a result of testimony developed at the public hearings.

"Much of this testimony was vague for the reason that none of the details of the treaty have been divulged, even to representatives of industries which may be affected. Witnesses were compelled to use scatter-gun tactics to take in possible changes which they felt the treaty might include."

It is felt that as the procedure with reference to these foreign trade agreements under the act unfolds that the mining industries of the United States must realize with increasing clarity the danger that is entailed when their destiny is decided by men of either limited or no experience in star chamber proceedings behind guarded doors. This state of affairs should be vigorously protested through every proper means. It is definitely despotic and un-American.

Federal Securities and Exchange Commission

On September 1 when the law requires the registration of stock exchanges the new commission will feel the main burden of its work. The members of the Commission are meeting daily and apparently are making every effort toward careful planning and the development of regulations under which the act will be administered. The home of the Federal Securities and Exchange Commission will be in the building now occupied by the Interstate Commerce Commission. The Federal Trade Commission will also occupy space in this same building at 19th and Pennsylvania Avenue, N. W., made available by the migration of the Interstate Commerce Commission personnel to its new quarters on Constitution Avenue and 12th Street.

Loans to Mining Industries

There is a section of Public Law 417 entitled "An Act Relating to Direct Loans for Industrial Purposes by Federal Reserve Banks and for other Purposes," which is of interest to mining. It is Section 14 and reads as follows:

"The Reconstruction Finance Corporation is authorized and empowered to make loans upon adequate security,

AS USUAL!

—Washington Daily News

based on mineral acreage to recognized and established incorporated agencies, individuals, and partnerships engaged in the business of mining, milling, or smelting of ores."

It is entirely possible that mining enterprises of an established nature may find some measure of benefit through this legislation.

National Labor Relations Board

This agency authorized by the substitute measure for the Wagner Labor Disputes Act has the following personnel:

Lloyd Garrison, chairman; Harry A. Millis and Edwin S. Smith.

The old National Labor Board, chaired by Senator Wagner of New York, ceased to function as of July 9 when the new board took office. The first act of the new board was to advise the Regional Labor Boards to carry on. It is understood that the new board considers that it has two primary duties: (1) to interpret the provisions of 7(a) of the National Industrial Recovery Act; and (2) to develop information so that the board may be in a position to recommend to the President a solution or solutions of the controversial labor situations now existing. It appears that such a function will lead inevitably to further legislation. The board will endeavor to maintain the position of an appellate body, a form of quasi-court for the handling of such disputes as come to it from the Regional Labor Boards. It is to be hoped that the Regional Labor Boards will be found unnecessary, but there apparently is a tendency to change the type of personnel of these boards to impartial men who have no affiliation either with labor or industry.

Unemployment Insurance

This issue is now being handled in part by the Department of Commerce Business Advisory and Planning Council. The Council has prepared a 16-point questionnaire which has been sent to 400 of the nation's leading industries with the comment that "in view of probable legislative developments in this field" American business and industry should inform itself on the subject "and make its views known so that constructively helpful principles may be adopted and cooperative action between business and Government result." Mr. S. Clay Williams, vice chairman of the Reynolds Tobacco Company, Winston-Salem, N. C., is the council chairman and has stated that the Council voted to submit the questionnaire "in order to be able to frame its own policy" in accordance with industrial sentiment. Mr. Williams stated that he and his associates hoped the questions "would not only stimulate serious thought among business leaders, but also reveal clearer and more representative information as to industry's position than has heretofore been available." It will be remembered that at the hearing before the Ways and Means Committee on the Wagner-Lewis Unemployment Insurance Bill during the 73rd Session of Congress, that Secretary of Labor Perkins testified that the 5 per cent assessment on total payrolls contemplated in the bill would develop the sum of $1,500,000,000 annually. The Department of Commerce Business Advisory and planning Council submitted its questionnaire to the NRA Code Authorities of 400 industries and asked that the questions be made available to the various enterprises. It is of interest to note some of the questions as follows:

"Do you favor the principle of unemployment reserve?

"Should they be built up and administered voluntarily by industry or enforced by law?

"Do you believe laws are necessary in order to enforce uniformity and competitive equality?

"Should reserves be built up by separate companies or by entire industries?

"Should the legislative unit be the State or, if constitutional, the Federal Government?

"If a direct Federal plan is held unconstitutional, do you favor Federal legislation to encourage enactment of relatively uniform laws in the States?

"Is a system of public employment offices an essential supplement to a reserve plan?

"Should reserves be built up from contributions of employes, or employe and employer, or the two and the Government?

"Should there be a limit to the periods for which compensation is paid?

"Should there be a "means" test for receiving compensation?"

National Labor Relations Board—Left to Right: Edwin S. Smith, Harry A. Millis, and Lloyd Garrison, chairman

Mining Loans

DESIGNED to help mining ventures, two sections of the Loans-to-Industries Act (Public Law No. 417) are of more than ordinary interest to mining operators. In brief, loans are provided for legitimate mining operations, advances to be made by the Reconstruction Finance Corporation.

Section 13 reads: "The Reconstruction Finance Corporation is empowered to make loans upon full and adequate security, based on mineral acreage, to recognized and established incorporated managing agencies of farmers' cooperative mineral rights pools not engaged in drilling or mining operations, said loans to be made for the purpose of defraying the cost of organizing such pools.

"Sec. 14. The Reconstruction Finance Corporation is authorized and empowered to make loans upon adequate security, based on mineral acreage to recognized and established incorporated agencies, individuals, and partnerships engaged in the business of mining, milling, and smelting of ores."

Closely coupled with this intended relief to the mining industry is the easing of restrictions in regard to the sale of mining securities, contained in the Securities Exchange Act (Public Law No. 291). These are in the nature of amendments to the Securities Act of 1933. Sections 201, 202, 203, 204, 205, contained on pages 27, 28, 29 of the new act, are those which are of particular moment to those in the industry.

NATIONAL RECOVERY ADMINISTRATOR has approved a code of fair competition for the nickel and nickel alloy industry bringing the total of codes approved to date to 443.

The industry, consisting of three companies, normally employs 1,500 persons and at present employs 1,200. The code provides a 40-hour week with certain exceptions all of which require payment of time and one-half for all overtime. A minimum hourly wage scale of 40 cents and weekly scale of $15 is established. No figures are given but it is believed that a marked increase both in employment and in payrolls will result from the adoption of the code. The code provides for an administrative body of seven persons, six of whom are to represent the Nickel Alloys Association, Inc., and the seventh any member of the industry not member of the association. The code became effective on Sunday, June 3.

Undercutting & Scraper Loading

in the mine of the United States Potash Company

By C. A. Pierce* and Geo. A. Heaton

THE MINE of the U. S. Potash Company is located 18 miles east-northeast of Carlsbad, in the State of New Mexico. The discovery of sylvinite in oil-well cuttings, a drilling program extending over a period of five years, the discovery of commercial beds of potash followed by the sinking of shafts and underground exploitation of the ore, mark the important successive phases in the history of this, the first potash-producing mine in these United States.

The operation is comparatively new, since the first shaft was completed in December 1930; a second shaft was sunk and underground connection with the first shaft made as recently as June, 1933. The bed of potash now being mined lies in the salt strata of the great Permian Basin of Texas and New Mexico at approximately 1,000 ft. below the surface. It is overlain by about 500 ft. of solid salt strata, followed by 500 ft. of shales, limestone, anhydrite, clays, etc. The ore, which is chiefly a mixture of crystals of sodium chloride (salt) and potassium chloride (sylvite), is white to red in color, weighs approximately 126 pounds to the cubic foot (15.8 cu. ft. to the ton) in place, and averages 10 ft. in thickness. Elevations taken on the floor of the bed do not indicate any regular direction of dip. In a few instances 6 percent grades have been encountered in certain areas. The immediate roof and floor are of salt mixed with varying amounts of shale and are so compact and tenacious that it is unnecessary to use timber or any other means of support even in rooms 40 ft. in width.

To date, the ore has been mined on a double entry panel system; all entries being driven 20 ft. wide on 70-ft. centers; rooms 40 ft. wide on 80-ft. centers, and room breakthroughs 20 ft. wide on 100-ft. centers. The first panel has a length of 2,300 ft., there being 25 rooms each 300 ft. long turned at right angles to room entries, which run the full length of the panel. The recovery of room pillars has not been attempted as yet.

* United States Potash Co.

In view of the fact that the total ore production is machine mined and mechanically loaded, it is proposed to deal only with the important operations of undercutting and scraper loading.

Undercutting

The Sullivan Machinery Company, taking advantage of experience gained in the potash mines of Europe, developed their Class CR-3 shortwall mining machine specially to suit the underground conditions at the U. S. Potash Co. mine. This machine is of extremely rugged design, weighs about 5 tons, is 28 in. wide, 23 in. high, and is 69 in. long (not including the cutter bar). It is equipped with a 50-hp. 220-volt 60-cycle motor; power being supplied through a 50-hp. Westinghouse magnetic switch. The switch is mounted on the truck, which remains back from the headings. A drum-type controller is moved on the machine. This arrangement was found to be more serviceable than the dial-type controller, as supplied with the original machine. The motor drives a special strong and position-reversible V-type cutter chain composed of chrome-nickel links. The length of the cutter bar is 8 ft. 6 in., giving an effective cut of about 7½ ft. Two large rope-feed drums, one on either side of the machine, each capable of holding 48 ft. of ⅝-in. wire rope, are independently operated by control handles at the rear of the machine. Each drum has a fast and slow speed friction, making it possible to obtain a maximum fast speed of 39 in. per minute when moving and a slow speed of 5 in. per minute when cutting.

The bottom of the bed, in which the undercut is made, maintains a fairly uniform gradient and hardness, so that the power demand when cutting remains almost constant at about 34 kw.

A cutting speed of 9 in. per minute was tried on the first machine sent into the mine, but resulted in considerable motor trouble and was discontinued. The standard feed now used is 5 in. per minute.

The machine cuts a 6-in. kerf, and under normal operation discharges about 60 percent of the original volume of the undercut at the rear end of the machine. Screen tests made on the cuttings show that 2 percent of the cuttings will not pass through a No. 1 mesh screen, 55 percent are retained on a 6-mesh screen, while 20 percent will pass through a 20-mesh screen. The dust produced by cutting seldom becomes objectionable to machine operators, all of whom are, however, supplied with respirators to be used at their own discretion.

In general, the machine is operated in the same manner as in coal mines. Short anchor pins of 2-in. round steel 15 in. long, with a hook at one end, are loosely inserted into short conveniently placed holes drilled in the floor. These are used in preference to jackpipes as rope anchors when moving the machine. This method necessitates the carrying of three or four anchor pins and a small drill as standard equipment with all machines.

All tracks are kept 30 to 50 ft. from the face in entries and rooms. Miller connectors are always conveniently located so that little time is lost in plugging in the trailing power cable. The average time required to unload, cut a 20-ft. entry heading, and reload the machine on the truck is 60 minutes. A similar operation in a 40-ft. room face is about 1 hour 50 minutes.

At time tilting of the ends and sides of the machine is necessary in order to avoid cutting into salt. This is important, since the introduction of only a small amount of extraneous salt may lower the potash content of the ore below the desired standard.

Sullivan silico manganese, super steel, pick-pointed bits, which are blunted and stellited before being sent to the machine, have so far proved most adaptable to this type of cutting. Dull bits are resharpened on the emery wheel and restellited when necessary. The average distance cut per bit changed is 4 ft., while the average life of a bit may be conservatively estimated at 50 times sharpening. It is usually found necessary to stellite a bit two or three times during its life.

Various types of ropes have been experimented with. The one that has proved most economical being ⅝-in.—6 x 29 regular lay with independent wire rope center.

The latest machine purchased is totally enclosed, and the back end is fitted throughout with roller bearings.

Scraper Loading

The first scraper loader used in this mine was supplied by the Sullivan Machinery Company. It consisted of a 25-hp. double-drum electric hoist mounted on a portable slide of sufficient width to accommodate a 48-in. hoe-type scraper, which loaded directly into the mine cars. After experimenting with this machine, with a certain amount of success, the idea was conceived that the replacement of the double drum by a triple-drum hoist might result in greatly improved operation. This idea was given a trial and was found to be such a great improvement that a triple-drum hoist has been adopted as a standard for all scraper loaders in this mine. Experiments also led to the discarding of the hoe-type scraper in favor of one of the box type.

The present portable slide, which is of the Osana-Miami type, is about 19 ft. overall in length, 52 in. wide inside to take a 48-in. scraper, and stands 7 ft. above the rail. The front inclined portion of the slide is 10 ft. long and is inclined 25 degrees to the horizontal; this is followed by the horizontal discharge end of the slide, the two being connected together by a curved plate 3½ ft. radius.

The slide is built to rotate on a turntable. This turntable is composed of a plate on the bottom of the slide proper, which rests on a plate on the top of the truck; the two being held together by a large kingpin. A new type of roller turntable is now under construction which, it is hoped, will permit of easier rotation of the slide. Wherever possible rollers are introduced in an effort to reduce rope wear and friction to a minimum. Furthermore, a large roller backed by a rail plate is fitted across the front end of the slide to protect it from shocks in the event of unusually large pieces of ore being drawn into the slide. The throat-side plates are built up level with the hoist base plate to preclude any possibility of the scraper riding on top of the plate when entering the front end of the slide. The throat itself is hinged in order to allow it to be raised clear of the track when the machine is being moved.

The Sullivan HTE 25-hp. triple-drum hoist and electric motor are both carried on the same base plate, which is bolted to an inclined plate fitted across the front end of the slide. The hoist is very compact, having three steel drums on a single shaft, ball bearings throughout, gears of heat-treated alloy steel and alemite fittings for complete lubrication. The motor pinion engages an internal gear keyed to the main drum shaft, which carries three pinions engaging three idler gears carried on studs inserted in the drums. These pinions engage the internal clutch gears on each drum. All gears are totally enclosed, the only visible moving parts are the drums themselves. The entire operation of the hoist is controlled by the three clutch bands on the three clutch gears, making it completely independent of brakes. The hoist has a vertical lifting capacity of 3,600 pounds and a hoisting speed of 230 ft. per minute.

In order to adapt the three-drum hoist to the portable slide it became necessary to develop side operating levers to make it possible for the operator to sit on one side of the slide and control the three drums while maintaining a complete view of the movement of the scraper. This is arranged by having two hand-operated levers for the rope drums, and a foot-operated lever to control the center pull rope drum. This method of operation is found to be just as simple as that of the two-drum hoist, where only two hand-operated levers are required.

The box-type scraper is 48 in. wide, 48 in. long, and 20 in. high; constructed of 1-in. plates and weighs 1,250 pounds. The bottom of the digging plate is scalloped to form teeth, the points of which are stellited to resist wear. The front ends of the side plates are bent in towards the center in order to permit the scraper to enter the throat of the slide easily. A crosspiece is welded to the inside of the bent-in portion of the side plates, to which is attached the pull rope through a Sauerman wedge socket. In order to be able to get closer to the face with this scraper, the back end of it has a curved plate of 21-in. radius, similar to that used on the hoe-type scraper, while to secure additional weight a 1-in. curved plate for the full height of the digging plate is riveted to the inside of the digging plate. The bottom or digging edge of the back plate is inclined at 60 degrees to the horizontal. The two tail ropes are attached to the scraper by means of two eyebolts which are bolted through the back plate near its center. The previous method of attaching two ropes to one eyebolt did not prove satisfactory. The most recent scraper fabricated at the mine is an entirely welded construction and is capable of moving 1 ton of ore per trip.

The pull rope is ⅝-in.—6 x 19 Lang lay, 170 ft. long, and the tail ropes are each ½-in.—6 x 19 regular lay, 300 ft. long. All ropes have wire-rope centers. The tail sheave at the back of the slide as well as the two Sullivan roller-bearing sheaves, which are anchored to the face when loading, are all 10 in. in diameter. The face sheaves are held in place by wedge eyebolts (made of alloy steel castings), which fit into holes drilled about a foot below the roof or back. The original eyebolt was improved upon by making a hammer head in front of the eye in order to prevent distorting the eye. The side plates of the sheaves have been extended up to the swivel hinge to prevent the wire rope from displacing when the sheave is not in a direct line of pull.

About 150 ft. of trailing cable is carried with each slide, one end of which carries the female plug of a Miller connector, the other end being connected to an Industrial Type AB-1 "De-Ion" circuit breaker, which is attached to the side of the slide close to the operator.

When loading from entries the loader is clamped to the rails near the end of the track by four special clamps. Track is laid on a center line, usually about 5 ft. from one rib, and is advanced regularly so that a length of haul by the scraper of 60 ft. is seldom exceeded.

Two short horizontal holes are drilled in the top corners of the face, into which the wedge eyebolts are driven and from which the roller bearing tail sheaves are suspended. After placing the tail ropes in position, hanging the sheaves and plugging in the power cable to the Miller connector, the machine is ready to commence loading.

Blasting is so arranged that the bulk of the broken ore will pass through a 10-in. grizzly and that a sufficient space is left between the top of broken ore and the roof for the scraper to operate on top of the muck pile. By manipulating the tail rope levers, the operator can place the scraper in any position on the broken ore and the pull rope pulls the load directly to the slide. When loading from the track in the center of a 40-ft. wide room face, half the face is first loaded out by anchoring the tail sheaves 20 ft. apart, and afterwards the other half is loaded. It will be observed that all entry and room faces are loaded over the end of the car or "end-loaded."

Generally it becomes necessary to swivel the slide on the turntable when loading from breakthroughs, and by so doing a large percentage of this ore can be loaded over the side of the car, or "side-loaded." Side loading has proved the more economical, and on this account a modified checkerboard layout, in which a large percentage of the ore will be side-loaded, has been developed and will be given a trial in the near future.

It requires from three to four scraper loads to load a car of 4 tons capacity, and the loading time averages 1 minute per car. Parting switches are kept as close to the loader as possible when "end-loading." When "side-loading," the best results are obtained with the loader operating from one track of the parting while the train of empties on the other track is moved under the discharge end of the slide as the cars are loaded. This method permits a quick car change, but it requires the necessary length of tail track beyond the loader to accommodate empty cars.

The loaded scraper is not subject to sudden shocks or jars when being hauled towards the slide because of the even floor resulting from undercutting. This smooth floor also tends to reduce friction and assists the scraper to make a good "clean-up."

Repair work on machines is carried out in an underground repair shop located near the shaft. All machines are regularly inspected and lubricated. The operators themselves carry their own oil cans for the proper lubrication of parts requiring frequent application of oil.

This three-drum scraper operation has proved very satisfactory for our development work, and is also a satisfactory loading unit in our tonnage areas. It is a rugged, mobile unit, and quite adaptable to various width headings.

There are mechanical loading units that give a higher per hour loading output. However, we consider the three-drum scraper slide a satisfactory loading unit under our methods of development and extraction.

EMPLOYES of the Oliver Iron Mining Company, in Minnesota, endorse employe representation plan of collective bargaining; 3,742 workers were eligible to vote, and 3,587 exercised their privilege.

THE TREND OF MECHANICAL LOADING

By JOHN H. RICHARDS *

THE mechanical loading of coal will, I believe, continue to increase as the installation of mechanical preparation plants becomes general. The increasing demand for a more uniform product is creating a greater demand for more stable and efficient preparation. We have found that a uniform product can be produced and its quality maintained through mechanical cleaning methods. It has often been said that mechanical loading makes mechanical cleaning a necessity. The increasing demand by the consumer for a more uniform product is creating quite a demand for mechanical cleaning plants. This need for more efficient cleaning facilities will, I believe, bring about, within the next few years, a general movement toward mechanical loading.

Some operators claim that their particular seam of coal is not suited to loading by mechanical methods. This idea was prevalent throughout the eastern Ohio district where the Pittsburgh No. 8 seam is being mined. We have, within the past five years, proven to our satisfaction that mechanical loading in the Pittsburgh No. 8 seam is practical—it is no longer theoretical. We have proven conclusively that it can be successfully carried on.

In our experience with this type of work, we have found that there are certain things that are necessary in order to successfully carry on any program of mechanical loading. The underground workings must be concentrated. The number of working places for each unit must be reduced to the minimum for the type of work to be carried on. In our particular case, at the present time, we are working 12 rooms with each production unit. These rooms are driven to a depth of 300 feet. We believe this depth to be the maximum for single-track gathering haulage. Single-track gathering haulage is necessary in our particular case, because of the nature of the top. The work must be classified and the crew for each loading unit must be divided into groups, each group having its specific duties to perform. The entry development and a schedule for the moves of the various units must be forecast at least three months in advance, in order to maintain a uniform production. Entry development must be under control at all times.

We believe that the mobile type loading machine is best suited for our particular needs. Larger mine cars are usually necessary in changing from hand loading. We have found that, by doubling the capacity of our mine cars, we were able to increase the production of our wide units by 25 percent.

The reduction of the number of working places for each unit and the coordination of the various groups reduce the moving time of the loading machine, thereby assuring a greater amount of time for production. The scheduling of the moves for the various units will enable the superintendent and foreman to know at all times the territories that must be developed and prepared, in order to keep a uniform production at a minimum cost.

Although I believe we are justified in saying that the progress that has been made in the development of our mechanical loading system is quite satisfactory, there are still many improvements yet to be made. We are not quite satisfied with the present method of serving cars to the loading machines, as we believe too much time is being lost by the loading unit during the changing of cars. The ideal set-up would be one that permits the loading machine to load an entire room cut of coal without interruption. The nearer we can approach this ideal set-up, the greater efficiency we can expect from the loading unit. The method of loading and disposing of draw slate in entry work is a problem that will require quite a lot of study. The problem of preparing room necks for the production units is one that requires some study, and I believe much improvement can be made over the methods now being used. We are, at this time, undecided on the question of whether we should go to a larger loading machine with larger crews and greater production per unit, or smaller loading machines with smaller crews and less tonnage per unit. The larger machine represents, of course, a much greater investment per unit. The smaller machine, although it reduces the amount of the investment per unit, will necessitate more units and possibly more open working face.

There are many problems connected with the mechanical loading of coal that warrant a lot of study before the final decision can be made and a definite program adopted:

(1) The type of equipment to be used is quite important. On this decision may depend the success or failure of any program of mechanical loading.

(2) The number of men to be employed on the crew is also a vital problem. This definitely sets up the labor cost per ton. Therefore, it is quite important that the decision on this question be very carefully made after a thorough investigation of the local conditions and their effect upon the work to be done.

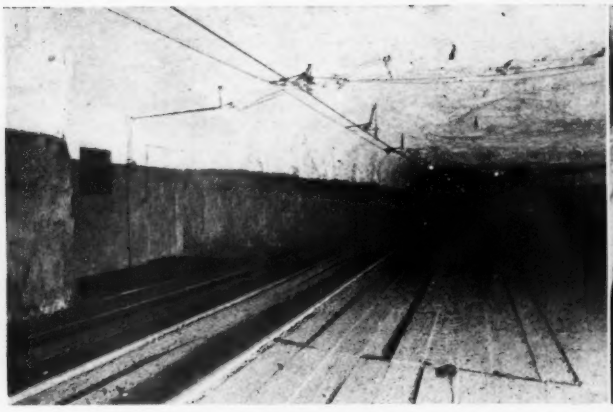
(3) The capacity of the mine cars to be used is an important item to consider.

(4) The method of shifting cars and serving the loading unit is a problem that warrants a lot of study before any decision is made.

(5) The height of seam, partings in the seam, character of the roof, tons per working place, are all items that, of course, bear directly on the decision made in connection with the four items named above.

An exchange of ideas with others interested in this work will be quite helpful to all concerned. It is the purpose of The American Mining Congress, through its sub-committee on mechanical loading to investigate these problems and pass on to those who are interested in mechanical loading such information as they feel will be helpful in deciding the problems that come up in connection with this work. Through this committee we will be able to follow the trend of mechanical loading, and some interesting data can be expected during the coming year.

* Hanna Coal Company.



A Shaft Plat, showing advantage of white-wash roof and walls

Negaunee Mine—View of heavy back in top slicing working.

Uncertainties In Mine Safety

By WILLIAM CONIBEAR *

THE editor of this journal, whose interest is centered in the march of progress, solicited a report upon the safety activities of The Cleveland-Cliffs Iron Company from the writer. It was deemed unnecessary to publish a record of the progress that has been achieved at a single mine, or group of mines, as this would be repeating an experience already familiar to the reader. Interest in mine safety remains unabated, and there are many phases to this problem, any one of which is important enough to take as a separate subject for inquiry and discussion. For, of all the problems mine operators have been compelled to confront, none has possessed a greater combination of difficulties than is bound up in the quest for that degree of safety which will give assured and permanent dominion over occupational hazards and the actions of men while they work amongst them. The way to this coveted goal stretches indefinitely ahead. He who travels this path will have many opportunities to meditate upon the potency of the role which the intent and act of man play in determining eventual success or failure as he works with sources of danger and moreover, to speculate whether, after all, the quest for certainty in this particular field will always be a degree of success ever relative and incomplete.

It is enough to state here that no attempt will be made in this brief discussion to show that safety results have been unsatisfactory or inconclusive when compared with the efforts that have been made in reaching them, and still more when compared with the results of corresponding efforts in other fields. Prevention of accidents is recognized everywhere as work of such incalculable value that success of any appreciable degree is a reward that should stimulate rather than mitigate the struggle to accomplish what may seem the impossible. Such being the case, it is hardly necessary to observe that past failures and frustrated expectations should not disparage confidence in the certainty that control of most accidents lies within the power of the employer.

Is it possible to sum up with exact precision the dependence that can be reposed in devices or appliances, or in the best laid plans of men which are employed to obtain security against accidents? As a miner works surrounded with elaborate arts of protection, are they the sole determinants of the outcome of association with danger? Are there definite hazards and other causes of accidents which are fixed and unchanging? These questions form the theme of this discussion, and while they will be approached cautiously, it will not be with a feeling that they are fraught with inexplicable potentialities for harm which should be feared or shunned.

Let us consider first the law or theory of probability as it may be applied to accident frequency. The significance of this law in a game of chance—for instance, in throwing a die—is that a player has confidence that his average result in the long run will be that the ace turns up once in six throws. Now, in the course of experience, the ratio between the whole number of chances existing in a mine for the occurrence of accidents to the number that actually occurs is unknown. We know that the greater the number of chances for accidents the stronger is the expectation that they will occur, and that the chief practical application of probability to frequency is that all chances either must be eliminated or controlled, otherwise accidents are inevitable.

A mine is a region of change, and change has in it an element of chance that cannot be eliminated. In sinking, drifting, raising and stoping, a miner's work is bound up with variable and changing conditions. Each of these phases of mining brings forth perils which demand their own protection. All of them represent occupations having activities directed toward the extraction of rock and ore, in which explosions of dynamite and falls of ground bring recurrent opportunities for the occurrence of accidents. As the life of a mine resolves itself into these processes of change, accidents occur which justify the contention that mining is primarily work which "no mode of action can give anything approaching absolute certitude; it provides insurance but no assurance." Let us turn over the pages of experience, covering many years as recorded by the mines of The Cleveland-Cliffs Iron Company, to validate the fact that uncertainty hangs around the corner of the road which we must travel in the quest for complete security.

The Cliffs shaft mine is a producer of hard hematite, which is being mined by

* Safety Engineer and Assistant Superintendent, The Cleveland-Cliffs Iron Company.

the open stope and pillar method. Although its early history goes back 50 years, stopes are being operated today above the first level and downward to the fifteenth level. It is a three days' journey by foot to inspect the active headings scattered throughout the many miles of openings which have been developed in this mine. Roof and walls everywhere are exposed rock or ore, and hard as they are, keen and constant inspection is the price of security against accidents by falls of "loose." From 1897 to 1915, years of oil torch, candle and carbide illumination, only three fatalities occurred by falls of ground. Since 1915, five fatalities are charged against the same cause, notwithstanding the added advantages of electric flood lighting and a supervisory inspection force largely augmented for the express purpose of promoting safety. Turning to a soft hematite mine, where caving by top slicing is in vogue, the Negaunee mine has not sustained a fatality by any cause other than falls of ground during the past 15 years, the first 10 of which were exempted from any such accidents. Since 1928, however, this mine has suffered the loss of four men, in as many accidents, by falls of ground, even though all sub-level intervals were cut down in order that miners should work directly under a protective timber covering. Curtailment in operations gave a choice selection of skillful miners and competent foremen during the second period.

Not all of the latter day fatalities were accepted as events which were incidental to mining and therefore non-preventable. Investigating committees rendered more than one verdict charging both employer and employe with negligence because of failure to comply with approved standards of operation. On the other hand, some of them demonstrated that no matter how thoroughly work may be planned and how carefully executed, unforseeable factors enter in and have a decisive voice. Proximity of openings and advancing headings to hidden lines of weakness, such as fractures, slicken-side faces and fault zones are frequently sources of danger, which inspection, trimming and sounding may fail to detect. Hence falls of ground with fatal consequences occasionally result. The endless process of extending and enlarging mine openings, such as goes on in the Cliffs shaft, leaves in its train an increasing territory for the development of "loose" and while only one death was attributed to this hazard, one accidental death spoils what otherwise would have been a satisfactory record.

Turning to explosive fatalities, our historical pages reveal that the Cliffs shaft had one in 1901 and another in 1931 and the Negaunee one in 1909. But as our history covers 36 years and includes 34 mines, the chapter on explosives gives ample material for our consideration.

Rarely, if ever, does the scene of an unexpected impending accident receive the safety inspection which was given to the rock drift heading where the explosive fatality occurred at the Cliffs shaft in 1931. A miner and helper fired a round of seven holes at the end of a shift and the latter reported that all the charges exploded. Muckers cleared away the broken rock on the following day, and the miner returned the next succeeding day to square off the cut. During the course of this day the place was inspected several times by the shift boss and once by the shaft foreman; by the assistant mining captain in company with the county mine inspector, and by the head mining captain together with the mine superintendent and the company's safety engineer. No man on these various inspection tours saw any sign or received an inkling that danger was present. Toward the close of the shift, the helper returned to the heading with a supply of explosives and found the drill machine running and the miner, lifeless, along side of it. The last act of the miner was the starting of a hole on an unbroken but shallow surface of rock, which concealed a small piece of dynamite that had failed to explode. The dynamite was in the bottom of a hole, located in the floor of the drift. The opening to the hidden powder was below water level and probably was packed with dirt. The explosion threw off a single rock, about the size of a man's fist, which struck the miner's head.

Other pages of our chapter on explosives recall accidents whose tragedies are memories that will not die. While the writer was inspecting a mine in company with the captain, the latter signified his intention to have a rock drift timbered ere approaching sub-levels made it unsafe. Two miners were summoned from a sub-level to the rock drift and instructed to proceed with the timbering. The first or second stroke of a pick brought an explosion of hidden dynamite. Again, on another inspection tour, this time with a committee of foremen, we reached a heading just as the miners were about to blast before leaving for dinner. We heard the holes explode and knew that all had gone off. We returned to the mine at 1 o'clock and were appealed to for first aid service. One of the miners had picked into a stick of dynamite which had been buried in the broken ore produced by his last blast. Two cases of total blindness, and the pages of our history record no more. Two too many.

A rough estimate of the number of holes which have been exploded in the mines of our company places it well above the 25,000,000 mark. Exposures of miners to newly broken openings exceeded 5,000,000. The number of times dynamite may have been left concealed in exploded holes, or buried beneath ore and rock piles, is conjectural. We know that no amount of pains or care in regulating methods and conditions of operations will entirely free us from facing this hazard.

The pages of our history have many descriptions of accidents which indicate that the course of future events may be uncertain when it is dependent upon the so-called human element. A miner's work is largely individualized and lacks constant supervision. Thus, it affords opportunities for careless thinking which is incompatible with any habits of careful acting. Contact with hazardous situations in the same way day after day is an experience tending to form the habit of self-sufficiency in that kind of thinking which involves action. Familiarity with danger is too often trusted infallibly as a basis of judgment of the propriety of action. Then, too, human deficiencies and errors join with unsafe habits to give elasticity to the accident chances which the everyday occupations of a miner produce.

It is commonplace to state that an operator should understand precisely the changes that go on at his mines and that it is his responsibility to formulate safe standards of operation which frame and define what must be done. Every accident caused by a man's insufficiency should be an incentive to devise means whereby a repetition of a similar occurrence will be circumvented. Everybody appreciates that safety education is fully as essential today, and will be in the future, as in the past. But it requires almost as much wisdom to take instruction as to give it, and enforcing proper methods of action hinges to a large extent upon men possessing experience and disciplined minds, and who are wary, expectant and prepared when occupied with hazards that must be brought under control. Regulation of conditions upon which safety depends is possibly only by action which has intelligent direction, which takes cognizance of all danger, and which plans and executes in the light of this knowledge. Unless there be continued adherence to their responsibility of recognizing the risks that pervade their activities and projecting efficient methods of dealing with them by all employes, mine safety will continue to be enveloped with perplexities and difficulties.

Space does not permit outlining an appreciable summary of the possible kinds of conduct which may sway men's activities when they are not under the control of intelligence. Here are brief descriptions of six accidents which illustrate the validity of the contention that uncertainty hovers around a miner's work, whether that work be simple or difficult. The number of accidents that could be cited for this purpose is almost legion.

1. Two miners were warned by a timber trammer not to pass under a raise because they would be exposed to the danger of being directly under a bundle of lagging, which was being hoisted there. As the miners loitered at a safe distance, one of them observed that the trammer had stopped close to the raise and was looking upward. He shouted "You had better look out for yourself, Dan, or you may get hurt." Came the reply, "I can look out for myself." A few seconds later, there was heard a thud, caused by a stick of lagging which dropped in the raise and struck the trammer a fatal blow.

In 16 years of producing ore, the mine where this fatality occurred had had no accidental deaths by any other causes excepting by falls of ground, of which there were two.

2. A miner swung a bar backward with the intent to bring it forward with sufficient force to pry under a scraper hoist. The end of the bar struck his fellow workman in the right eye, which necessitated its removal.

Thinking has been called "deferred action" which simply signifies action directed into channels of examination of conditions and doings that are preparatory.

3. A foreman completed a tour of safety inspection on a sub-level and started to climb down a raise to the haulage level by stepping backward on a ladder, which projected three feet above the collar at the top of the raise. His feet slipped, and having no handgrip on a rung, he fell to the bottom of the raise. His injury was a fractured vertebra.

It might be pointed out that this accident illustrates the importance of exercising a nice discrimination in the selection of foremen, which is true, but the

same holds good for most mining occupations. If operators were to retain on their payrolls only men who are mentally and physically perfect, the status of our industry would be insignificant compared to its present importance.

4. A churn drill was being set in position. Two drillers were putting on the jars but failed to open the stem guide when hoisting them from the ground. The angle of the rope and the weight of the jars pulled the guide from its clamp and it fell on a driller's hand, fracturing a finger.

Prior to this accident one of the drillers commented to the other that they should cut away some brush or they might get hurt. Thus ended a record of 52 months without a lost-time accident for the Tilden Mine.

5. A stock trestle floor had been repaired and workmen started cleaning up. One of them picked up a short plank, approached the floor railing, and shouted, "Look out, below," and almost immediately threw over the plank. A pocketman, while busy at his routine work, was killed by this thoughtless act.

6. A miner stepped off a cage at a shaft station along with 25 men at the beginning of a shift. Complaining of toothache, he walked around the shaft, opposite the direction necessary to reach his working place, and stepped into the narrow opening of an ore pocket, over which an electric lamp gave ample vision. A fall of eight feet resulted in death.

The average age of the men who were responsible for those six accidents was above 40 years and in every instance each man was experienced in mining and had had the benefit of years of special instruction in safety. In no instance was there any more necessity of exposure to accidental injury than a person is subjected to when starting down a stairway in a home, for in and about the mine, as in the home, just ordinary precaution goes a long way in avoiding accidents.

Gold buttons, in recognition of having been employed at a mine which had operated a year without suffering a lost-time accident, were worn by three of the men concerned in these accidents, proving the saying, "Eternal vigilance is the price of safety," is not without merit.

"Believe it or not," on the day following the writing of the above citations, the writer was in a stope of the Cliffs Shaft Mine with the mining captain watching a miner as he was trimming a wall, and in another stope, at the same time the following simple but fatal accident occurred.

A miner of 30 years' experience in this mine spent several hours barring the top section of a side of an ore pillar, standing on the upper rungs of a 16-foot ladder. Having made that place secure, he then took a shorter ladder and started to trim the lower part of the pillar. While standing on the ladder, about four feet above the floor of the stope, he either slipped or lost balance, for he fell off and landed on coarse, broken pieces of ore which covered the floor. The loose he was barring could have been reached standing on solid ground. As we inspected the place, the trammer told us that the miner was so provoked at himself because he had sustained an accident in such a simple way that he gave vent to his feelings in violent profanity. He objected to being sent to surface and to a hospital. A physical examination and X-ray views failed to show any internal injury but even though pneumonia may have accelerated his death, the direct cause was the accident. Thus the depreciation of the values of what should regulate safe conduct is far reaching in its effects. In this instance, the man also had been the recipient of a gold button.

After a mine has been operated 50 years with exemption from an accident of this nature, particularly at a mine where this work is going on almost every hour of the operating time, the reality that comes from experience with uncertainty is hard to down. We would that all accidents were preventable and we classify them accordingly but the confidence to achieve complete security keeps coming upon ways that unfold possibilities for misfortune. Some of these we thought were under control and others our limited foresight failed to visualize.

During the past three years our company has suffered five fatalities, of which one was caused by a fall of ground and four by causes which had previously been responsible for no fatalities, and only two non-fatal accidents. All were preventable to the extent that there was failure on the part of employes to observe standards of operation that always must be observed if repetitions of similar accidents are to be avoided in the future.

A study of the actualities connected with thousands of mine accidents is conducive to the view that the age-long association of fortune or luck, and the opposite synonyms, is not entirely illusory. It does not require a stretch of the imagination to appreciate that chance plays an important role in the occurrence of eye injuries, or that it was not present when one man is killed by falling five feet and another returns to work after falling a long distance. Many men have verified by actual experience the certainty of the statement: "Two shall be working in the field (or mine); one shall be taken and the other left." There is the incident of the miner who cursed his ill-luck when he fractured a leg by falling on an icy highway while going to work but who concluded the following day that he was a fortunate man when informed that the miner who had substituted in his place had been killed by a fall of ground.

While a man's ability to anticipate the result of his acts is obtained by experience instruction and reflection, the disadvantages of experience compared with instruction and reflection is that it fits one only for limited conditions. Too often the experience of having had many years of association with occupational hazards exempted from accidental injury is depended upon to determine what constitutes safe methods of work in the face of any contingency. An illustration will elicit this fact. Several years ago an "Honor Roll" was compiled which comprised the names of our employes who had worked more than 30 years and had not been injured during the course of their employment. Heading the roll for underground operations was the name of a miner with 42 years of credit to his service. That man once said to the writer: "Why is it that you always find fault when you come in our place? I have worked in mines ever since I was a boy and have never been hurt."

Perchance a reader may conclude that the writer is presenting a depreciatory attitude toward the values of safety precautions. Let it be stated in conclusion, as in the beginning, the purport of this discussion is not to detract from the fact that it is within the power of operators to control the principal hazards of mining and also that they can achieve a reasonable degree of control over the actions of employes. An effort has been made simply to point out that mining is a practical activity that "deals with individualized and unique situations which are never exactly duplicable and about which, accordingly, no complete assurance is possible."

Safety Bar at foot of Raise Used for Traveling

Emergency Fire Tank

A MODERN COAL PREPARATION PLANT

By C. H. SPENCER * †

ONE of the most modern coal preparation plants in the bituminous coal fields is that of the Barnes Coal Company, situated in Cambria County, near Bakerton, Pa. This plant handles coal from the company's No. 14 and No. 15 mines.

The plant consists of two units, a Marcus tipple built in 1931, and a stump air-flow cleaning plant which was put in operation in January, 1933. Both the tipple and the cleaning plant were designed and built by the Roberts and Schaefer Company, of Chicago.

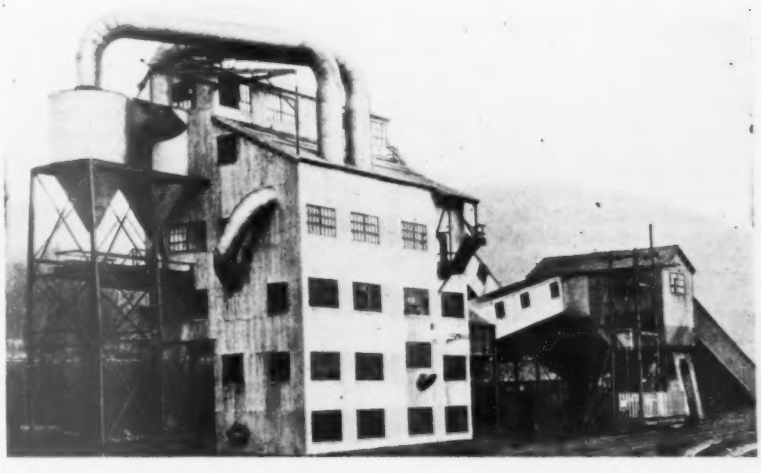
The mine locomotives bring the trips of loaded mine cars to the dump house, where, by means of a reciprocating car feeder, gravity revolving dump, and automatic car cager, the coal is dumped at a rate of from 500 to 600 tons per hour.

A double acting weigh basket receives the coal and mine rock from the dump, delivering the same to a coal hopper and a rock feeder hopper. Reciprocating feeders feed the coal to a 42-inch belt conveyor for delivery to the Marcus tipple, and feed the rock to a 36-inch belt conveyor for delivery to rock bin under the tipple floor, both coal and rock belt conveyors being housed in a common gallery.

A Marcus screen 6 feet wide receives the run-of-mine coal from the 42-inch belt conveyor. As the tipple loads run-of-mine onto two railroad tracks, the prime function of the Marcus screen is to screen the run-of-mine into 3-inch lump for hand picking and 3 by 0 inch screenings, which is delivered to the air-flow cleaning plant. This Marcus screen also reunites the picked lump coal and the clean coal from the cleaning plant as prepared run-of-mine.

The 3-inch slack from the Marcus screen is received from the bottom deck by a flight conveyor at the rate of 400 to 450 tons per hour. This flight conveyor runs parallel to the loading tracks and delivers the screenings to a 150-ton raw coal bin in the cleaning plant proper, the function of this bin being to enable the mixing of coals from our No. 14 and No. 15 mines, as the coal is dumped in whatever proportions desired at the dump house. Slide gates are provided in the conveyor over the bin for even distribution.

Attention might be called to the overall dimensions of the cleaning plant. It



Preparation Plant of Barnes Coal Co.

is housed in a building 52 feet long and 34 feet wide, with an average height of 54 feet. In this comparatively small building are the entire cleaning facilities for storing 150 tons of coal and for cleaning the 3 by 0 inch slack at the contract rate of 360 tons of raw feed per hour.

From the 150-ton bin the coal is fed by a battery of six rotary feeders to six Ro-Sieve screens, which divide the coal into 3 by ¾ inch, ¾ by ¼ inch, and ¼ by 0 inch sizes. The three size products are delivered to their respective air-flow units for cleaning:

Three 18-inch wide units for the 3 by ¾ inch coal.

Three 18-inch wide units for the ¾ by ¼ inch coal.

Six 24-inch units for the ¼ by 0 inch coal.

Making a total of 12 primary units.

This combination of feeders, screens, and stump cleaning units divides the plant into three units, and it is therefore possible to screen and clean at one-third or two-thirds capacity if and when necessary.

The air-flow units are three-product machines making a clean coal, middlings, and refuse.

Owing to the fact that the cleaner is stationary, it is possible to provide it with an absolutely dust-tight hood, rigidly attached to the top angles, so that there will be no dust whatever originating at this cleaner.

Clean coal, refuse, and middlings chutes are provided with suitable sampling and inspection doors.

Because of the simplicity of its construction and design, the stump air-flow machine is low in air consumption, low in power cost for cleaning, low in cost of dust collection recovery, low in maintenance cost, and requires less floor space than any other machine of like capacity.

The 12 primary units enumerated above deliver their clean coal to the clean coal conveyor, which delivers it to the Marcus screen in the tipple for mixing with the picked lump, while either the middlings or refuse, or both, can be delivered to five secondary stump air-flow units for recleaning, these units being located on the floor below. When desired, the refuse from the 12 primary units can be delivered direct to the refuse conveyor and elevated for disposal to the refuse bin adjoining the cleaning plant.

The middlings, or middlings and refuse combined, that are delivered to the five stump recleaners are delivered as independent sizes direct from the machines above. In other words, there is provided:

One 18-inch unit for retreating the 3 by ¾ inch middlings and refuse product.

One 18-inch unit for the ¾ by ¼ inch product.

(*Concluded on page* 37)

* Westinghouse Electric & Manufacturing Co.
† In cooperation with Roberts & Schaefer Co.

Current Practice in Coal Mine Drainage

By WALTER E. HOUSMAN *

ALTHOUGH the "American Recommended Practice for Drainage of Coal Mines" was approved and issued as recently as 1931, it was written early in 1929. It is not surprising, therefore, to observe that noticeable improvement has been made in mine drainage practice during the past four years.

Field Pumps:

Each year sees proportionately more installations of self-priming rotary or centrifugal gathering pumps. The tendency reflects the fact that the centrifugal pump can be made more cheaply in acid resisting metal and that its simple construction reduces the cost of maintenance parts, and simplifies the work of installing these parts.

At the same time, piston pumps have been greatly improved. Not only are more parts made of better acid resisting material, but more attention has been given to automatic lubrication and the machines more ruggedly built.

Main Station Pumps:

Centrifugal pumps are specified almost universally today when large quantities of water are to be handled. The use of casings containing 18 percent or more chrome is increasing, evidently because former difficulties have been overcome in making intricate and comparatively large castings.

Rotating elements of chrome iron have become a standard with many large mining companies.

The use of protective coatings for the interior of centrifugal pump casings is increasing. There are several such coatings available which, when properly applied and maintained, are very effective.

Much attention has been given to the addition of full automatic priming and control for main pumping stations, as is shown by the number of such installations made in the last few years.

Piping:

Piping for gathering service is still a problem although better materials continue to appear. A great deal of fiber pipe is being used. Cement lined cast iron pipe in short lengths is effective and is being used in increasing quantities. Cement lined steel pipe, with a new, quickly assembled flange coupling, is now available. For bad water, and where the pipe is exposed to external corrosion, solid rubber pipe with quick detachable sleeve couplings, can be had at a very reasonable cost.

In large diameters a recent installation was made in rubber lined pipe at a very low cost. The pipe was standard weight steel with flanges welded on. The finished length of each flanged section was furnished the rubber company and the latter made up complete linings at the factory. Each piece of lining had a rubber flange at each end to form a seal and a gasket. On delivery it was necessary only to collapse one rubber flange, draw the lining into the pipe section, and to release the collapsed flange. This installation cost less for material than cast iron, wood lined pipe, and was much cheaper to install because of its lighter weight.

Storage:

Much attention is being given to the storage of mine water. Often enough power is saved by pumping during off-peak periods to more than cover the cost of the required storage. In addition, there is a considerable saving in upkeep due to the dropping of so much suspended matter in the sump. Such storage often saves the cost of spare pumping equipment otherwise required as a safeguard in case of a breakdown or power interruption.

* Mechanical Engineer, H. C. Frick Coke Co.

Iron Mining Tax Suit Up For Trial July 30

The trial of the iron mining case involving delinquent taxes in St. Louis County, Minn., and totaling about $2,000,000, will go to trial July 30. This important case will be heard by five district judges, and is expected to occupy several weeks. The judges who will hear the testimony and arguments are Judge Martin Hughes, Judge Bert Fesler, Judge Edward Freeman, Judge H. J. Grannis, and Judge C. R. Magney.

The trial of the iron mining delinquent tax case is a sequel to years of contention of the mining companies that their mine taxes were rapidly becoming a burden greater than they could bear, and were unjust and confiscatory. The breaking point came during the depression, when the tax burden naturally was more keenly felt. A considerable portion of the taxes due was permitted to become delinquent in order to throw the question of unjust taxation into court.

It is understood that the mining companies will make their principal attack upon the overvaluation of their properties for taxation purposes, but there is also involved in the case the constitutionality of the Minnesota classification law permitting the assessment of iron ore at 50 percent of its full and true value, while other classes of property enjoy lower rates.

Elmer F. Blu, general solicitor of the Oliver Iron Mining Company, will represent that firm and a number of its subsidiaries, together with Clarence J. Hartley, assistant general solicitor, and George W. Morgan, St. Paul, formerly of Duluth, now a member of the firm of Kellogg, Morgan, Chase, Carter & Headley of St. Paul.

The Oliver company attorneys also will represent the Republic Steel Corp. and the Hanna Ore Mining Co.

Donald D. Harries and W. K. Montague, of the law firm of Mitchell, Gillette, Nye & Harries, of Duluth, will represent the independent mining firms, Oglebay, Norton & Co., the Corrigan, McKinney Steel Co., and the Snyder Mining Co. W. D. Belden, of Cleveland, will be associated with the firm in representing the Corrigan company.

Chief counsel for the county will be Patrick J. Ryan, St. Paul. Others on the legal staff for the county will be Thomas J. Naylor, county attorney; C. E. Adams, special county counsel; Victor E. Essling, mayor of Eveleth, Minn.; and Charles Wangensteen, of Chisholm, Minn.—*Skillings Review.*

THE INCREASING USE of electric power and the more extensive employment of oil-burning equipment by industrial plants is bringing about reduced consumption of coal in Greece, according to a report to the Commerce Department from Commercial Attache K. L. Rankin, Athens.

Between 1927 and 1930, the report shows, Greek imports of coal averaged 755,000 metric tons, reaching a maximum of 827,000 tons in 1930. With no material change in industrial activity, the average for 1931-33 was only 700,000 tons, with only 596,000 tons imported in 1933. On the other hand, imports of fuel oil increased steadily from 51,212 metric tons in 1927 to 111,683 tons in 1933, a gain of 120 percent.

The United Kingdom, Soviet Russia, and Turkey are the chief sources of coal imports into Greece, the report points out, supplying during the past five years approximately 90 percent of total purchases from abroad. During 1933, the United Kingdom accounted for 14.5 percent; Soviet Russia, 49 percent; and Turkey, 21.5 percent of total Greek coal imports.

NATIONAL Recovery Administrator Hugh S. Johnson has approved the method of selection of the following as a subdivisional Coal Code Authority for the State of Utah: Otto Herres, W. C. Stark, J. B. Marks, Moroni Heiner, and F. A. Sweet, each of Salt Lake City and each an official of different coal companies there; M. O. Carlson, manager, Willow Creek Coal Company, Helper, Utah; Albert Christensen, manager, Christensen Coal Company, Fairview, Utah.

MINING EVENTS

Gold and Silver

SILVER reserves in the Treasury continue to pile up. Treasury figures this week indicate from a survey that the Roosevelt Administration has purchased more than 100,000,000 ounces of silver thus far.

Of this amount 9,985,000 ounces represent newly mined metal, purchased since last Dec. 21. Last week's total receipts were 1,428,247 ounces of newly mined silver, the largest increase in months.

SUPPLEMENTARY regulations on the silver tax were issued recently by Guy T. Helvering, Internal Revenue Commissioner. The new regulations concern the memorandum a broker must furnish when liquidating a long position for a customer outside the United States. Sworn statements are required and a broker is prohibited from executing any transfers except with definite authorizations from owner for purchase of stamps and except for long positions standing on his books before June 28, 1934.

THE TREASURY DEPARTMENT Thursday evening issued regulations under which silver may be licensed for export under the terms of the export embargo issued June 28.

The regulations amplify the earlier ones and are designed to safeguard against speculative activities and still not interfere with legitimate transactions.

The decision of the Secretary of the Treasury with respect to the approval or disapproval of an application shall be final. Licenses issued under the regulations are not transferable. All licenses issued shall expire 30 days from the date of issuance, unless otherwise stated therein.

The superintendent of the United States Assay Office at New York or the United States Mint at San Francisco is authorized to issue licenses for the export of silver imported for refining and re-export. Fabricated silver may be exported without license, if an affidavit is filed with the Collector of Customs at the port of shipment or with the postmaster at the place of mailing, after such collector or postmaster shall have endorsed it, and is satisfied that the shipment is not for the purpose of holding or disposing of such articles outside the United States primarily for their silver content.

The regulations provide that licenses may be issued authorizing the exportation of silver which

(a) is required to fulfill an obligation to deliver such silver outside of the continental United States, incurred or assumed by the applicant on or before June 28, 1934;

(b) has been owned on and continuously after June 28, 1934, by a recognized foreign government, foreign central bank, or the Bank for International Settlements;

(c) was imported in silver-bearing materials under an agreement to refine such materials and export the silver so refined; or

(d) is of a fineness of not more than 800 parts of silver in 1,000 by assay.

The Secretary of the Treasury may with the approval of the President also issue licenses authorizing the exportation of silver for purposes other than those enumerated which are not inconsistent with the purposes of the Silver Purchase Act of 1934.

Licenses are not necessary to export articles fabricated from silver, foreign silver coin and ore and metals containing silver in relatively small amounts, but, except in the case of foreign silver coin, an affidavit is required to be filed with the Collector of Customs at the port of export or the postmaster at the place of mailing before the silver may be exported.

"Applications under subdivision (a) of Section 1 of this article shall be accompanied by a sworn copy of the contract or obligation required to be fulfilled, and a statement under oath (which shall be attached to and made part of the application) showing (1) the amount of silver held by the applicant at the close of business June 28, 1934, and at the time of this application and (2) a list of all his firm contracts whether for purchase or sale of silver, which at the close of business on June 28, 1934, had not been completely fulfilled by delivery of all the silver therein contracted for.

"Such list shall state (a) the names and addresses of the parties to each contract; (b) the dates of such contracts; (c) the amounts of silver contracted for in each contract and the delivery date specified in each contract; (d) the amount of silver undelivered under each contract at the close of business June 28, 1934; (e) the amount of silver undelivered under each contract at the time of this application, but which is required to be delivered under such contracts.

"Upon receipt of the application and after making such investigation of the case as it may deem advisable, the Federal Reserve Bank shall transmit to the Secretary of the Treasury the original of the application, together with any supplemental information it may deem appropriate. The Federal Reserve Bank shall retain the duplicate of the application for its records."

The penalties for willful violation are a fine of not more than $10,000, or if by an American national, imprisonment of not more than 10 years or both.

"Any officer, director, or agent of any corporation who knowingly participates in such violation," the regulations add, "may be punished by a like fine, imprisonment, or both."

To export articles fabricated from both gold and silver, the exporter must comply with the provisions of regulations issued under the Gold Reserve Act of 1934 as well as the provisions of the silver regulations.

Metals containing not more than 50 troy ounces of fine silver per short ton may be exported under the regulations but to export metals containing both gold and silver the regulations must be observed that were issued under the Gold Reserve Act of 1934 permitting such exports where the metals do not contain more than five troy ounces of fine gold per short ton.

Citizens leaving the country may carry with them articles owned by them for their personal use fabricated out of silver, which do not contain more than 100 troy ounces.

The export of foreign silver coins is permitted but emphasize that an executive order of January 15, regulating transactions in foreign exchange and transfers of coin and currency, "prohibits the export or withdrawal from the United States of any silver coin which is legal tender in the United States by any person within the United States except under license issued pursuant to that order."

Provisions covering export under license of silver imported for refining and re-export specify that the actual amount so exported shall not exceed the amount imported for re-export. It is permitted, however, to mix domestic metal with that imported for re-export, but in such a case the total amount exported shall not exceed the silver imported for re-export. Careful provision is made in the regulations to assure that the 50 percent tax imposed in the silver purchase act on profits arising out of transfers of silver shall have been paid.

THE PRODUCTION of gold in the world in May this year, estimated by the American Bureau of Metal Statistics at 2,248,000 ounces, exceeded that of the previous month by over 100,000 ounces and was the highest figure reported for any month since the Bureau began issuing regular monthly reports in the summer of 1932. It is also indicated that the May production was at the highest monthly rate ever recorded and at least of current record.

According to official reports the production of gold in Russia in the first quarter of 1934 was 67.3 percent above the output for the corresponding period of 1933, there having been substantial increases in each of the districts. This would indicate, conjecturally, a production of about 835,000 ounces in the first quarter of 1934 and we may guess an average of something like 300,000 ounces per month in the second quarter, and we are using such figures in the world's summary, but it is to be observed that there is a good deal of conjecture about this, states the American Bureau of Metal Statistics. The great quantity of gold that Germany has been getting from Russia, however, harmonizes with largely increased production.

Copper

THE *WALL STREET JOURNAL* reports a reduction of 72,000,000 pounds in world stocks of refined copper in June which was the largest reduction in any month since July, 1933, when they were reduced 76,000,000 pounds. In June, 1933, world stocks were reduced 74,000,000 pounds. Reductions in May, 1934, was 58,000,000 pounds.

As the reduction, except for a negligible amount, was entirely in North and South American stocks, the reduction in these stocks in June was largest for any month in several years. In both June and July, 1933, there were reductions of several millions pounds in stocks outside the Americas.

Apparent consumption of copper in June, according to sources that in 1933 accounted for more than 85 percent of

world copper consumption, was 259,000,000 pounds, compared with 257,000,000 pounds in May and 240,000,000 in April. United States apparent consumption, according to this compilation, which was fairly accurate for the United States in 1933, was 93,000,000 pounds in June, compared with 95,000,000 pounds in May and 86,000,000 pounds in April.

Apparent world copper consumption this year to the end of June has been, according to this compilation, 1,422,000,000 pounds. United States apparent consumption to the end of June is figured at 499,000,000 pounds.

Mine production in the United States, according to this compilation, which reported in 1933 for 95 percent of the United States production, was 31,000,000 pounds in June, compared with 32,000,000 pounds in May and 40,000,000 pounds in April, bringing mine production for the United States to 219,000,000 pounds to the end of June.

Production outside the United States, according to this compilation, which covers production of North and South America outside the United States, Spain, Rhodesia and Belgian Congo in Africa, and does not include Russian, most of German, or the Far Eastern output of copper, was 142,000,000 pounds in June, compared with 141,000,000 pounds in May and with 136,000,000 pounds in April, bringing the total to end of June to 775,000,000 pounds.

Scrap Production Increased

Scrap production for the United States in June was 34,000,000 pounds, compared with 33,000,000 pounds in May and 21,000,000 pounds in April, making scrap production to end of June 135,000,000 pounds. Scrap production for the foreign countries covered by the compilation was 9,000,000 pounds in June, compared with 14,000,000 pounds in May and with 11,000,000 pounds in April, making total to end of June 65,000,000 pounds.

United States stocks of refined copper have been reduced 205,000,000 pounds since January 1, 1934, and world stocks reduced 285,000,000 pounds in the same period, making a reduction of 80,000,000 pounds in stocks of refined copper outside the United States. United States stocks of refined copper have been reduced since January 1, 1933, about 456,000,000 pounds and world stocks 578,000,000 pounds in the same period, making the reduction outside the United States 122,000,000 pounds.

The change in world stocks of copper is exclusive, throughout, of any change in stocks in the Far East, Australia and Russia. It is believed that these stocks are remaining fairly unchanged in total.

To supply the mineral industry promptly with data on copper production and markets during the past year, the following information is furnished by the United States Bureau of Mines.

Smelter production of copper from domestic ores in 1933 declined 17 percent from output in 1932, which, in turn, was little more than one-half that in 1931. The output in 1933 amounted to only 33 percent of the average for the five-year period, 1928-32. Production of copper by mines in 1933 decreased about the same percentage as smelter output, but refinery production from domestic ores showed an increase of 8 percent. The average price of copper delivered in 1933 was slightly above that for 1932, which was the lowest price ever recorded.

After several years of rapidly increasing stocks of copper, producers were successful in reducing stocks of refined and unrefined copper in 1933. Total stocks of copper at smelters, in transit to refineries and at refineries were 13 percent below those on hand at the end of 1932; they were, however, 19 percent above the average for the five-year period, 1928-32.

Imports of unmanufactured copper in 1933 were 26 percent lower than those in 1932, continuing the decline begun in 1930 from the record imports of 1929. In 1933 they amounted to only 41 percent of the average for the five-year period, 1928-32. Exports of metallic copper increased slightly in 1933 but they amounted to only 41 percent of the average for the five-year period, 1928-32.

The quantity of new copper indicated as withdrawn from supply for domestic consumption was 31 percent higher in 1933 than in 1932, but was only 56 percent of the average for the five-year period, 1928-32.

More complete information and statistics on activity at copper mines and smelters in 1933 are given in the chapter on "Copper" in the "Minerals Yearbook 1934," about to be issued by the United States Bureau of Mines, and which may be purchased about August 20 from the Superintendent of Documents, Washington, D. C.

Smelter Production

The smelter production of primary copper from domestic sources during 1933 amounted to 449,999,143 pounds, a decrease of approximately 17 percent. The value of smelter production decreased approximately 16 percent in 1933. The average price of copper delivered during the year, as reported to the Bureau of Mines by selling agencies, was 6.4 cents a pound, f. o. b. refinery.

In the following table the production is apportioned to the states in which the copper was mined. The figures represent the content of fine copper in the blister produced and the smelter output of ingot copper from Michigan.

COPPER PRODUCED IN THE UNITED STATES FROM DOMESTIC ORES, 1932-1933
(Smelter Output, in pounds fine)

State	1932	1933
Alaska	13,297,443	1,575,936
Arizona	201,136,276	122,697,035
California	5,514,045	632,049
Colorado	8,976,169	8,882,397
Idaho	662,957	2,183,284
Michigan	63,898,656	72,340,852
Missouri	.....	181,703
Montana	97,918,141	94,262,651
Nevada	32,616,050	42,507,400
New Mexico	32,914,883	24,948,272
North Carolina	(*)	(*)
Oregon	36,890	9,301
Pennsylvania	(*)	(*)
South Carolina	.....	408
Tennessee	(*)	(*)
Texas	8,588	2,137
Utah	76,402,502	65,655,914
Washington	2,521	87,199
Wyoming	607	46
Undistributed	10,624,220	14,032,559
Total	544,009,948	449,999,143

* Included under undistributed. Bureau not at liberty to publish.

Refined Copper

The total production of new refined copper in 1933 was 742,000,000 pounds, an increase of 61,000,000 pounds from that in 1932.

PRIMARY AND SECONDARY COPPER PRODUCED BY REGULAR REFINING PLANTS AND IMPORTED, 1932-1933, IN POUNDS

	1932	1933
Primary:		
Domestic:*		
Electrolytic	373,492,550†	421,318,802†
Lake	53,815,281†	59,497,370†
Casting	17,770,043	521,859
	445,077,874	481,338,031
Foreign:*		
Electrolytic	235,240,651	260,048,594
Casting	549,209	191,927
Refinery production of new copper	680,867,734	741,578,552
Imports of refined copper	167,793,988	10,863,358
Total new refined copper made available	848,661,722	752,441,910
Secondary:		
Electrolytic	120,397,873	170,878,078
Casting	56,654	160,214
	120,454,527	171,038,292
	969,116,249	923,480,202

* The separation of refined copper into metal of domestic and foreign origin is only approximate, as an accurate separation of the amounts at this stage of manufacture is not possible.
† Some copper from Michigan was electrolytically refined at an Eastern refinery and is included as electrolytic copper.

In addition to their output of metallic copper the regular refining companies produced bluestone (hydrous copper sulphate) having a copper content of 6,479,000 pounds, as compared with 6,345,000 pounds in 1932.

Stocks

STOCKS OF COPPER JANUARY 1, 1930, 1931, 1932, 1933, AND 1934, IN POUNDS

Year	Refined copper	Blister and material in process of refining*
1930	306,000,000	500,000,000
1931	615,000,000	450,000,000
1932	924,600,000	348,000,000
1933	1,004,000,000	378,000,000
1934	813,000,000	388,000,000

* The amounts stated in the last column in the table above do not include copper in stock at foreign smelters or in transit from foreign smelters to refineries in the United States.

Consumption

The new refined copper withdrawn from the total year's supply on domestic account in the United States in 1933 and the method employed in determining it are shown in the following table, which does not include stocks of copper held by consumers.

NEW REFINED COPPER WITHDRAWN FROM TOTAL YEAR'S SUPPLY ON DOMESTIC ACCOUNT, 1932-1933, IN POUNDS

	1932	1933
Total supply of new copper	848,661,722	752,441,910
Stock at beginning of year	924,600,000	1,004,000,000
Total available supply	1,773,261,722	1,756,441,910
Copper exported*	250,058,954	264,742,586
Stock at end of the year	1,004,000,000	813,000,000
	1,254,058,954	1,077,742,586
Withdrawn on domestic account	519,202,768	678,699,324

* Includes refined copper in ingots, bars, rods, or other forms.

SUMMARY OF FEATURES OF THE COPPER INDUSTRY IN THE UNITED STATES IN 1932 AND 1933

		1932	1933
Production of copper:			
Smelter output	lbs.	544,009,948	449,999,143
Mine production	lbs.	476,221,076	*392,380,000
Refinery production of new copper:			
Electrolytic	lbs.	†373,492,550	†421,318,802
Lake	lbs.	†53,815,281	†59,497,370
Casting	lbs.	17,770,043	521,859
Total domestic	lbs.	445,077,874	481,338,031
Total domestic and foreign	lbs.	680,867,734	741,578,552
Total new and old copper	lbs.	1,177,000,000	1,418,000,000
Average price per pound	cts.	6.3	6.4
Imports (unmanufactured)	lbs.	391,991,342	291,170,946
Exports of metallic copper‡	lbs.	295,356,719	303,825,790
Withdrawn from total supply on domestic account:			
Total new copper	lbs.	519,202,768	678,699,324
Total new and old copper	lbs.	1,016,000,000	1,355,000,000
Stocks of refined copper§	lbs.	1,004,000,000	813,000,000
Stocks of blister and materials in solution§		378,000,000	388,000,000
Value of smelter production from domestic ores		$34,273,000	$28,800,000

* Preliminary figures.
† Some Michigan copper was electrolytically refined at an eastern refinery and is included under electrolytic copper.
‡ Total exports of copper, exclusive of ore, concentrates, composition metal, and unrefined material.
§ At end of the year.

Imports and Exports

The figures of imports and exports of copper reported by the Bureau of Foreign and Domestic Commerce are shown in the following tables:

COPPER IMPORTED INTO THE UNITED STATES IN 1933, IN POUNDS

Country	Ore (copper content)	Concentrates (copper content)	Regulus, black or coarse copper (copper content)	Unrefined black blister and converter, in pigs or converter bars	Refined in ingots, plates, or bars	Old and clippings for remanufacture
Africa:						
Union of South	.....	.....	.....	3,000,450	.....	.....
Mozambique	.....	.....	.....	28,017,994	.....	.....
Australia	216,496	141,740	6,940	.....	.....	.....
Canada	1,208,574	11,165,887	1,532,151	19,961,695	.....	258,865
Chile	9,786,234	8,598,268	101,593	26,917,241	10,860,910	.....
Cuba	120,264	16,704,320	.....	.....	.....	.....
France	4,408	.....	176,146	.....	.....	.....
Germany	.....	.....	159,189	.....	.....	.....
Mexico	143,368	98,907	.....	87,675,601	.....	.....
Peru	450,232	45,182	62,838	52,800,175	.....	.....
Spain	.....	.....	161,283	.....	.....	.....
United Kingdom	.....	.....	177,212	8,043	2,448	250
Jugoslavia	.....	.....	.....	8,928,630	.....	.....
Other countries	521,730	1,078,617	66,125	9,160	.....	1,780
	12,451,306	37,832,921	2,443,477	227,318,989	10,863,358	260,895

COPPER EXPORTED FROM THE UNITED STATES, 1933, IN POUNDS

Country	Ore, concentrates, composition metal and unrefined copper (copper content)	Refined: Bars, ingots, or other forms	Refined: Rods	Old and scrap	Pipes and tubes	Plates and sheets	Wire (except insulated)	Insulated wire and cable
Belgium	15,193,774	14,481,572	1,615,264	1,786,589	.....	.....	.....	30,730
Canada	.....	91,930	158,449	668	200,871	70,084	32,358	175,739
China	.....	4,070,869	.....	2,078	2,820	1,333	1,078,504	258,547
Denmark	.....	2,267,366	336,114	.....	.....	.....	.....	5,573
France	24,671,911	72,855,294	1,591,336	4,608,009	3,335	23,016	.....	29,407
Germany	47,317	34,762,322	6	8,927,880	.....	29,261	.....	7,795
India (Brit.)	.....	352,431	1,344,681	72,586	4,657	174	.....	199,555
Italy	.....	30,037,514	56,000	113,005	.....	.....	.....	14,229
Japan	.....	28,158,249	.....	7,399,436	194	1,203	56,208	18,319
Netherlands	2,276,343	9,140,107	2,579,896	1,297,029	3,862	.....	22,714	24,373
Norway	.....	1,001,984	1,709,716	.....	.....	.....	9,947	3,928
Russia in Europe	.....	.....	.....	.....	68	.....	.....	16
Spain	.....	.....	.....	2,066,461	1,499	.....	21,126	43,940
Sweden	.....	12,195,775	1,167	.....	.....	.....	.....	11,540
U. K.	124,497	26,596,672	13,914	2,006,237	3,436	407,452	.....	7,794
Other countries	3,114,084	13,151,421	6,172,537	163,159	580,910	600,718	1,350,048	5,308,784
	45,427,926	249,163,506	15,579,080	28,437,137	801,652	1,133,241	2,570,905	6,140,269

INFORMATION from the Code Authority advises that users of over 95 percent of all copper consumed in the United States have signed temporary buying agreements with the Copper Code Authority.

The Code Authority has asked users that have signed agreements to report amount of copper on hand March 22, the effective date of sales quotas and buying agreements. This copper is to be reported as normal, in-process, stocks on hand necessary for plant operation, on hand and contracted for to meet sales commitments, and free stocks of copper on hand available for use or sale.

The authority also asks fabricators and users to report copper content of new sales commitments made March 22 to April 30, in May and in June, and amount of new copper purchased March 22 to July 1, with itemized list of purchases and supplies with tonnage obtained from each source. Copper content of all scrap purchased from March 22 to July 1, also was requested, with amount in new scrap purchased and in old used scrap. Each user is also asked for average monthly copper consumed in year ended June 30, both as in new copper and in scrap.

The letter accompanying the questionnaire states that the individual reports will be confidential, but that the totals will be published for guidance of both producers and users of copper, while the data will be used in aiding the Code Authority properly to appraise probable buying power and in working out a permanent buying agreement for submission to each user for signature. The authority states that the buying agreements will be simple and flexible enough to permit the consumer to sign with assurance that he will be able to obtain all copper needed in meeting reasonable sales commitments, and at the same time not be obligated to buy excessive tonnages.

The letter also states that if all consumers give the information requested, a true picture will be obtained of copper stocks at beginning of the period and an accurate picture of the condition of business that will enable both consumers and producers to judge what new volume is available.

Lead and Zinc

STOCKS of ZINC, including all grades, showed a decrease of over 5,000 tons during June, according to the monthly report of the American Zinc Institute. The decrease was brought about by shipments of 30,200 tons as against production of only 25,150 tons, which contrasts with 35,600 tons shipped in May and production in that month of about 31,000 tons. Of the total decrease in stocks, 3,500 tons occurred in the Prime Western surplus, according to privately circulated data.

Unfilled orders on smelters' books on June 30 totaled 21,700 tons, showing an increase of about 900 tons as compared with May 31. Retorts operating at the end of June, 31,300, were up nearly 4,100 compared with the number operating at the close of May. The increase is explained by the resumption of operations by smelters that had been down in the previous month because of labor strikes.

ZINC CONCENTRATE shipments for June were the highest for the first six months of the year by almost 40 percent, according to *American Metal Market*. Demand was heavy and there were five weeks for the month thus bringing the shipments to a total of 34,934 tons, or 6,987 tons per week on the average. Shipments started out the first two weeks in excess of 8,000 tons per week but dropped by the end of the month to 5,853 tons for the last week. This recession in shipments was due in part to the refusal of producers to sell

their product in the face of a constantly decreasing offering. Prices started out at $28 per ton, dropping the second week to $27 and the third week to $26, at which it held steady for two weeks, while the last week of the month the market recovered to $28. The average for the month was $26.70.

The first week of the month showed production at 8,000 tons, but this receded to approximately 7,500 tons per week for the remainder of the month and the operators closed down 80 percent of all the mills for the entire month of July. Stocks gained in spite of the heavier shipments. The month opened with 14,460 tons and gradually increased week by week until they reached a total of 21,940 tons at the end of the month. This is equivalent to approximately three weeks' output and three weeks' shipments.

Lead shipments also reached the highest point for the year in June. Total shipments were 5,082 tons or an average of 1,016 tons weekly. The production ranged from 800 to 1,000 tons per week and hence stocks were slightly reduced. The first week of the month they were 13,939 and closed the month at 13,110 tons. Prices were rather steady the first four weeks of the month but dropped precipitately $5 per ton the last week, closing at $37.50 per ton.

THE REPORT of the Tri-State Zinc and Lead Ore Producers Association for week ending June 30 follows:

	Zinc Concentrates			Lead Concentrates		
	This Week	Last Week	Year Ago	This Week	Last Week	Year Ago
Total stocks (sold and unsold)	23,072	21,639	14,320	13,035	12,709	14,053
Net reserve stock	22,556	20,808	13,970	12,915	12,709	14,030
Production*	7,518	7,085	3,628	921	1,379	468
Shipments	6,085	5,250	4,686	595	1,660	750
Sales reported	5,770	4,515	3,248	715	1,644	224
Base price—Joplin	$28.00	$26.00	$30.00	$37.50	$42.50	$50.00
Metal price—Average for week: Zinc, E. St. L.—Lead, St. L.	4.270c	4.200c	4.445c	3.770c	3.850c	4.050c

* Including tailing mill production: Zinc Concentrates—This week, 1,432; last week, 1,658; year ago, 163.

MILL STATISTICS

	This Week	Last Week
Mine mills operated 32 hours or more	28	29
Mine mills operated less than 32 hours	2	2
Tailing mills operated 96 hours or more	17	18
Tailing mills operated less than 96 hours	0	0
Total mills which produced more than 25 tons during week	47	49
Mills which produced less than 25 tons during week	3	8
Total number of mills operated during week	50	57

Mine Mills Operated This Week.—Adm. No. 2; Amer. Diamond; Beck No. 3; Black Eagle; Mary Jane; CM&R Bird Dog, See Sah & Wilbur; Conico; VH. Barr; Century Goodeagle; Dines Wilson; EP Central; EW No. 4; Federal Jareett; Bluebonnet; K&O Discard; Lawyers; Lucky OK; Locklyn; Peru; Mary M. Beck; Mid-Continent; Mission; Ramage; Skelton; St. Louis No. 4 and No. 8; Sixty-six; UZ Royal; Velie Lion; Zig Zag; Turtle.

Tailing Mills Operated This Week.—Atlas; Baxter Chat; Cardin; CM&R Beaver & Chubb; King Brand; EW No. 7; Peru-Laclede; F&B Bluebird; Hutts; Interstate Woodchuck; Myers No. 2; Semple Rightley; Mo. Chitwood; Tri-State Ottawa; Wills Grace Walker; Youngman.

FOLLOWING in the wake of the stiff advance in zinc metal, concentrates in the Joplin field advanced $2 per ton, making flotation concentrates $27 per ton and coarse mill concentrates $28 for the week's settlements. Demand was strong but producers generally sold very sparingly and sales amounted to only 2,050 tons, one of the smallest tonnages sold during the year.

Shipments were 5,853 tons, a slightly smaller tonnage than the previous week.

Production was slightly larger for the week, totaling 7,600 tons, but the producers shut down practically 80 to 90 percent of all the mines in the district Saturday night for an indefinite period. Present plans call for a two weeks' trial period, and if there are no recalcitrant producers starting up in the meantime the production may be cut off the entire month of July. The whole plan depends upon the sticking together of the operators. It is believed that most of the larger producers will close definitely but it is admitted that a number of the smaller ones will continue, especially where there are difficulties in the way of closing down, such as independent pumping and lease requirements controlled by land owners. Even so the shutdown is expected to be near 80 percent total.

Stocks are equivalent to about three weeks' output only or 22,000 tons, much of which is strongly held. Producers of ore feel that if the smelters would curtail in an equal manner, metal stocks would be proportionally reduced and the zinc metal industry be brought into a better situation. It is pointed out that the ore producers have had their concentrate stocks down to a low level for over a year while the smelters have not reduced their metal in the same proportion.

THIS REPORT accounts for the slab zinc available for consumption in Great Britain, France, Germany, and Italy, which represents about 65 percent of the zinc consumption of Europe, meaning what is commonly reckoned as consumption. To a considerable extent the zinc that they receive and manufacture passes out in the form of fabrications. Such exportations are taken in account in respect of rolled zinc, but not so in respect of galvanized goods, which are of special importance in the position of Great Britain.

Supplies of zinc in slabs and rolled forms are summarized, in metric tons, in the following table:

Country	Average per month 1932 (yr.)	Average per month 1933 (yr.)
Great Britain	11,198	12,178
France	7,715	8,399
Germany	11,096	11,163
Italy	1,653	2,035

Country	1934 Average per month	1934 Number of months reported
Great Britain	15,440	5
France	8,587	4
Germany	17,440	5
Italy	2,299	4

—*American Bureau of Metal Statistics.*

Iron and Steel

COMPLETE FIGURES compiled by the American Iron & Steel Institute place output of steel ingots and castings in the United States for 1933 at 23,232,347 gross tons, against 13,681,162 in 1932 and 25,945,501 in 1931. The high record was 56,433,473 tons, in 1929.

Production of steel ingots alone in 1933 totaled 22,894,286 tons, against 13,464,402 in 1932; the castings figures were 338,061 tons and 216,760, respectively. There was a sharp upswing in alloy steel ingot and casting production, the total for 1933 being 1,547,183 tons compared with 798,604 the previous year.

In 1933 there were 126 works in 23 states and the District of Columbia which made steel ingots, against 126 works in 24 states and the District of Columbia the previous year. Steel castings were made at 260 works in 34 states, the District of Columbia, Alaska and the Panama Canal Zone in 1933, whereas in 1932, 257 works in 33 states, the District of Columbia, Alaska and the Panama Canal Zone made steel castings.

Output of tin plate in 1933 totaled 3,776,251,279 pounds, and of terne plates 186,529,299 pounds, against 2,209,125,646 and 103,689,879 pounds, respectively, in 1932. The record for tin plate output was in 1929, when 4,068,338,817 pounds were produced; terne plate output was also at a record that year with a 340,608,132-pound total.

Last year's production of cast iron pipe and fittings aggregated 484,683 tons, against 527,588 in 1932 and 1,129,292 in 1931.

The following table gives production of all classes of finished rolled iron and steel products in 1933 compared with previous years (Figures in gross tons):

	1933	1932	1931
Iron and steel rails	416,296	402,566	1,157,751
Plates and sheet	6,216,650	3,443,308	6,069,581
Wire rods	2,024,095	1,186,181	1,844,621
Structural shapes	1,109,457	927,228	2,062,858
All others	6,968,588	4,481,805	8,071,084
Total	16,735,086	10,451,088	19,175,894

The high record for finished products was set in 1929 with 41,069,416 gross tons; the peak in plates and sheets also was reached that year with a 12,436,312 tons total, in structural shapes with 4,778,020 tons, and in "all other" products with 17,988,710 tons. The record in rails was fittings aggregated 484,683 tons, against 527,588 tons. The wire output record was in 1916, with 3,518,746 tons.

APPOINTMENTS to a National Steel Labor Board by President Roosevelt June 28 includes Judge Walter P. Stacey, of North Carolina; Dr. James A. Mullenbach, of Chicago; and Rear Admiral Henry A. Wiley, retired. The board is fully empowered under the joint labor resolution passed by Congress to act in all labor controversies affecting the iron and steel industry.

The Steel Board, created a day after the Longshoremen's Board, has far greater power, being authorized to handle disputes under section 7 (A) of the NRA. It is important to note that the President's order of creation provides for majority rule in the election of spokesmen for collective bargaining and is regarded, from the labor viewpoint, as a step ahead of the agreement which resulted in the creation of the National Automobile Labor Board. This latter called for pro-rata representation by both union and company union groups in a works council.

Members of the Steel Board are all noted mediators and are specifically labeled in the President's order as "impartial members." Judge Stacey has been active in membership on boards for the settlement of labor disputes, notably in the railway industry. Dr. Mullenbach has been for more than 20 years a labor arbitrator for a Chicago men's clothing firm, and is at present a part-time member of Secretary Ickes' Petroleum Labor Policy Board. For the past year he has helped adjust labor controversies in the Chicago area for the National Labor Board. Admiral Wiley is an Alabaman and had long service in the Navy. He has served on two emergency boards in railway disputes between the various railway unions and two carriers.

Because of the interest in these new mediation boards, which will operate in connection with the new National Labor Relations Board, the text of the President's order creating the Steel Board is herewith appended:

"Sec. 1 (a). There is hereby created in connection with the Department of Labor a board to be known as the 'National Steel Labor Relations Board,' which shall be composed of Walter P. Stacy, chairman; Henry A. Wiley and James Mullenbach. Each member of the board shall receive necessary traveling and subsistence expenses, and, in addition thereto, $40 per diem.

"(b) The board shall have authority to appoint employes, without regard to the provisions of the civil service laws or the Classification Act of 1923 as amended, and to incur financial obligations in the proper performance of its duties. Obligations and expenses incurred under the authority of this order shall be paid out of the funds appropriated for the purposes of the National Industrial Recovery Act by the Fourth Deficiency Act, fiscal year 1933, approved June 16, 1933 (48 Stat. 274, 275).

"Sec. 2. The board is hereby authorized in connection with labor problems relating to the iron and steel industry—

"(a) Promptly to investigate, hear and determine any charges of interferences, restraint or coercion of employes in the exercise of their rights as defined in section 7 (A) of the National Industrial Recovery Act or Article IV, No. 1, of the code of fair competition for the iron and steel industry, and any complaint of discrimination against or discharge of any employe in violation of the rights as defined in said section; and

"(b) To mediate in any dispute arising between employers and employes in the iron and steel industry; to arrange, when the board shall deem it necessary, for conferences for collective bargaining or adjustment of grievances between employers and representatives of employes chosen in accordance with the requirements of section 7 (A) of the National Industrial Recovery Act (48 Stat. 198; U. S. C. Title 15, No. 707 (A). Artivle IV, No. 1), of the code of fair competition for the iron and steel industry and Public Resolution 44, Seventy-third Congress, and by mediating and conciliating to promote the settlement of controversies between employers and employes in the industry; and

"(c) To serve as a board of voluntary arbitration or to create boards of voluntary arbitration in any labor dispute between employers and employes in the iron and steel industry, provided that such dispute is voluntarily submitted for arbitration by both the parties thereto.

"(d) To exercise all the powers provided in said Public Resolution 44, Seventy-third Congress, for a board established under said resolution.

"Sec. 3. Whenever, after its services are invoked, by employers or employes, the board, upon investigation, shall find that an election is necessary to determine by what person, persons, or organization employes desire to be represented, the board is authorized to order and conduct an election by a secret ballot (including primary elections when deemed advisable) in order to determine by what person, persons, or organization the employes desire to be represented. After each such election the board shall certify the result to all concerned, and the person, persons, or organization certified as the choice of the majority of those voting shall be accepted as the representative or representatives of said employes for the purpose of collective bargaining, without thereby denying to any individual employe or group of employes the right to present grievances, to confer with their employers, or otherwise to associate themselves and act for mutual aid or protection.

"Sec. 4. The board shall have access to such pay rolls and other documents as will enable the board to prepare and certify lists of employes eligible to vote in elections.

"Sec. 5 (a) The board, with the approval of the President, shall make and prescribe such rules and regulations as it may deem necessary for the exercise of the powers conferred in this order.

"(b) The board shall make a report to the President through the Secretary of Labor of its activities, findings, investigations and recommendations.

"Sec. 6. The board shall cease to exist when, in the opinion of the President, it has completed the duties it is authorized to perform."

WHAT—NO RABBITS?

—Washington Daily News

Coal

COAL MINING interests, in common with those of all industry, will find the activities of the newly created National Labor Relations Board as the most important and far-reaching, so far as the industry is concerned, of all new governmental agencies. Although coal production continues fairly steady with figures still well above those of last year at this time, labor difficulties, either threatened or real, are fraught with significance for operators. The new board is likely to become of more moment to industry than the NRA itself ever was, chiefly because of the power it has in labor disputes. Lloyd Garrison, its soft-spoken chairman, is not the usual type of wishy-washy Government official. Grandson of the noted abolitionist whose name he bears, he is likely to become as militant a crusader for what he thinks is "right" in labor controversies as was his grandparent in the slavery question.

The number of actual labor difficulties throughout the country at this writing are far more numerous than most realize. Newspapers discuss only four or five major troubles. As a matter of fact, there are 100 actual strikes or serious labor difficulties now engaging the activities of Federal labor mediators. These men were connected with the regional mediation boards set up under the old Wagner National Labor Board, and now under the new board.

There is a definite feeling in administration circles that these controversies must be settled—and at once. It is pretty well understood that every effort will be made to secure satisfactory settlements within the next few weeks—if possible before the primary elections in the majority of states.

Little imagination is needed to visualize that large groups of striking workers are not likely to feel overly friendly to administration candidates who, in spite of promises and really startling steps in behalf of the workers, have thus far failed to effect settlements always satisfactory to the labor groups.

Candidates in scores of states are worried about the outlook and so is the Democratic National Committee. Importunate telegrams to officials here to "do something about this strike" pour in.

Already the heads of 20 regional labor agencies, part of the old National Labor Board set-up, are on their way to Washington for week-end conferences with the new board.

Chairman Garrison explained that the conference was for the purpose of welding a permanent organization. New plans will be discussed, he said.

Most important of these new plans, say those who profess to know, will be strict orders to settle existing labor difficulties.

"Settle them to the satisfaction of both sides—but in any case settle them at once," is very likely to be the motto that the regional chairmen will have ringing in their ears when they leave Washington early next week for their respective bailiwicks.

The text of the Executive order by which the President set up the new board, carried in the JOURNAL last month, gave the body wide powers. In this connection it does not come amiss to discuss the possibility of growth of this agency—a growth which may within a year or two make it, if not the largest, at least the most powerful of the newer agencies.

At the first formal meeting, Chairman Garrison announced that the entire set-up of the present regional agencies of the old National Labor Board has been taken over by the National Labor Relations Board.

What was more important was the indication that the regional bureaus would be extended and subdivided into state and even smaller sectional bodies, equipped to cope immediately with authority in labor controversies.

The larger regional boards are oft-times far away from the seat of troubles in their region. It is not so much a distance of miles as one of distance in perspective and feeling in the local controversies. Smaller boards made up of persons intimately familiar with the local problems of both the industry management and labor are likely to effect quicker, more satisfactory, and more lasting settlements.

Thus it becomes evident that within a year the new National Labor Relations Board may grow into a large organization. Its representatives are likely to be present in every nook and corner of the land. It is to be a Government agency whose function will be to make labor and capital lie down in the same bed and sleep peacefully together—not for one night but for years.

MINERAL AND COAL industries can look to important long-range trends from the newly created National Resources Board. Its primary immediate object is a land and water survey with the idea of removing millions of farmers from present unprofitable submarginal lands to new areas, probably those which will come under new irrigation projects.

Members of the board include, in addition to the Secretary of the Interior, chairman: Secretary of Agriculture, Secretary of Commerce, Secretary of Labor, Federal Emergency Relief Administrator, Frederic A. Delano, Charles E. Merriam, and Wesley C. Mitchell. The latter three constitute an advisory committee with Delano as chairman.

That the board will be a factor in conservation legislation is indicated by the fact that it must submit a report of its actions and recommendations to the President before December 1 of this year.

The board supplants the old National Planning Board, which had already made a survey which indicated that more comprehensive and detailed work was needed before recommendations could be made.

THE TOTAL PRODUCTION of bituminous coal as estimated by the U. S. Bureau of Mines, for the week ending July 7, amounted to 5,118,000 net tons. Compared with production of preceding week, this is a decrease of 1,157,000 net tons, or 18.4 percent. Production during the corresponding week in 1933 amounted to 5,530,000 net tons.

Preliminary figures show that the total production of bituminous coal for the month of June, 1934, amounted to 26,430,000 net tons, as compared with 28,100,000 tons during the preceding month of May, and 25,320,000 tons during the month of June, 1933.

The total production of soft coal during the current calendar year to July 7 is estimated at 187,797,000 net tons, as compared with 151,587,000 tons during the corresponding period in the preceding year, showing an increase of 36,210,000 tons.

JUST A RED HOT MAMA

—Washington Daily News

SHIPMENTS of anthracite for the month of June, 1934, as reported to the Anthracite Institute, amounted to 3,495,223 net tons. This is a decrease, as compared with shipments during the preceding month of May, of 996,195 net tons, or 22.18 percent, and when compared with June, 1933, shows a decrease of 26,213 net tons, or 0.74 percent.

The total production of anthracite (which includes colliery fuel) for the week ending July 7, as estimated by the Bureau of Mines, amounted to 657,000 net tons. This is a decrease, as compared with production of the preceding week, of 486,000 net tons, or 42.5 percent; this decline being due in part to the Fourth of July holiday. Production during the corresponding week of 1933, which week also included the holiday, amounted to 676,000 tons.

ALSO VERY MUCH discussed these days is the single basic code promulgated by Gen. Hugh Johnson for the industries hitherto uncodified. It is important to note that among the small number of codes which are *not covered* by the new administrative order is *anthracite coal.*

Described as having "special and important economic, labor, and legal conditions," the codes on anthracite coal, telegraph communications, and shipping are kept aside for further individual consideration.

Such action indicates the possibility of a special anthracite code, similar to the existing bituminous code, for the hard-coal industry, which may be worked out later.

Some 262 codes, which had been pending before the NRA, were included in the list for which the NRA submitted a broad general text and which were covered in Administrative Orders X-61 and X-63 by the NRA Administrator.

ANTHRACITE operators are bound to be more concerned with the steps now being taken toward negotiating foreign trade agreements than are bituminous producers. The latter have little to fear from foreign competition, except in the case of Canadian production, whose shipments of 250,000 tons last year may be counted as negligible and affect mostly soft-coal men in Washington and Montana.

But a real threat is present in possible shipments of Russian anthracite.

Last year the United States exported 15,000,000 tons of coal, principally to Canada, the West Indies, and various Mediterranean ports, largely in Spain and North Africa. At the same time we imported 500,000 tons of anthracite, mostly from Great Britain and Germany and largely for New England consumption. The $2 a ton tariff on coal shipments from these countries is noneffective because of the most-favored-nation treaty of 1814.

But should a trade agreement be effected with Russia (hardly likely until the debt tangle is straightened) the possibility of large shipments of anthracite from that country looms.

Looking at the matter from a longer range viewpoint, however, it may be that domestic coal production may be helped by securing added quotas for coal from noncoal-producing countries in the south of Europe. Chief sale for American coal is and has been the domestic market and it may prove advantageous to producers if foreign markets are open, particularly for anthracite.

Meanwhile, apart from the bare announcement that the Committee for Reciprocity Information has held meetings and that negotiations with Cuba are under consideration, no public announcement of any details are made. Congressional opponents of the reciprocal tariff bill, who thought they were safeguarding industry with the clause which requires that 30 days notice be given before a trade agreement is concluded, will find themselves outguessed by the diplomacy of the State Department Committee. It can practically complete all its negotiations with a country without the least bit of public notice. Then 30 days before the trade agreement is due to go into effect it can give the required notice. The law requires only that interested parties be heard and the "bargainers" need not necessarily pay any attention to complaints of domestic industry objecting to any one of a series of agreements on various products with a foreign country.

The committee held its first meeting two weeks ago, adopting regulations for

the guidance of persons desiring to present their views in connection with any proposed trade agreement.

Members of the committee are Thomas Walker Page, vice chairman of the U. S. Tariff Commission; Robert Frazier, American Consul General of the State Department; Leslie A. Wheeler, in charge of the Division of Foreign Agricultural Service of the Agriculture Department; Henry Chalmers, Chief of Division of Foreign Tariffs of the Commerce Department; John Lee Coulter, former member of the U. S. Tariff Commission and now connected with the office of the Special Advisor to the President on Foreign Trade; and H. D. Gresham, acting Chief of the Imports Division of the National Recovery Administration.

Following are the regulations prescribed for the presentation of views in connection with proposed foreign trade agreements:

"Pursuant to section 4 of the act of Congress approved June 12, 1934, entitled 'An act to amend the Tariff Act of 1930,' and Executive Order No. 6750 of June 27, 1934, the following form, manner, and time limitations with respect to the presentation of information and views by persons interested in the negotiations of any foreign trade agreement are prescribed:

"*Form and Manner of Presentation.* Information and views shall be presented to the chairman, Committee for Reciprocity Information, United States Tariff Commission, Washington, D. C., in the form of written statements. Such statements shall be duly sworn to and shall be either typewritten or printed in sextuplet, and each of the six copies shall be legible. If the statements relate to duties or other trade restrictions affecting more than one product, each product must be treated separately and statements with respect to each product shall begin on a separate page.

"*Supplementary Oral Presentation.* Supplementary views may be presented orally only upon application to the chairman and after written statements have been submitted in proper form. Such application may be made in writing to the chairman and shall set forth concisely the reasons therefor. Also the application shall state whether it is desired to present supplementary information and views concerning tariffs or other trade restrictions of the foreign country with respect to which the Secretary of State has given public notice of intention to negotiate a foreign trade agreement or concerning tariffs or other trade restrictions of the United States. The committee will consider the application and inform the applicant whether or not it is approved.

"Oral statements shall be made under oath.

"Any oral presentation of views hereunder shall not be in the nature of a public hearing.

"*Time Limitations.* The time limits within which information and views in writing and applications for supplemental oral presentation of views shall be submitted, as well as the time for supplemental oral presentation of information and views, will be prescribed by the committee in connection with each proposed foreign trade agreement, and will be made public in behalf of the committee by the Secretary of State simultaneously with his notice of the intention to negotiate each proposed agreement."

EXEMPTION FROM the provisions of the code for the retail solid fuel industry is asked by the Cotton Textile Institute of New York in behalf of 359 cotton mill companies which it represents. These companies, the request declares, located in Alabama, Georgia, North Carolina, and South Carolina, and a few in New England, sell fuel to their employes as an accommodation and ask that they be exempted for that reason. The matter is before the code authority.

THE BUDGET and the basis of contribution by members of the industry for the wholesale coal industry, recently submitted by the code authority, has been approved by the NRA. The budget totals $113,340 for the year beginning March 12, 1934. The basis of contribution is that the code authority shall assess each member of the industry monthly on the basis of his tonnage for the previous month at a minimum of $1 per month (beginning with March). The total of the 12 monthly assessments must not exceed the budget total.

EUREKA

—Washington Daily News

BUREAU OF MINES accident reports covering coal-mining operations in the United States during May, 1934, revealed a total of 94 fatalities among the men employed at the mines. As the production of coal during the month was 33,350,000 tons, the fatality rate (a) was 2.82 per million tons. This rate, which is subject to revision, compares with a revised rate of 2.90 for April, 1934, and 2.16 for May, 1933. The fatality rate for bituminous mines alone was 2.46, slightly more favorable than the April rate of 2.54 but higher than the rate of 2.22 for May a year ago. Production of bituminous coal in May, 1934, was 28,100,000 tons and the number of fatal accidents was 69. Reports for anthracite mines in Pennsylvania showed 25 fatalities during May, 1934, in connection with the mining and preparation of 5,250,000 tons of coal. The fatality rate at anthracite mines for May was 4.76 per million tons, as compared with 4.73 for April, 1934, and 1.69 for May, 1933. The rate for anthracite mines for May a year ago was unusually favorable, as only five men were killed during that month.

The first six months of the calendar year 1934 have gone into history without the occurrence of a major explosion disaster in any mine in the United States, though a coal mine fire in Kentucky in April, 1934, caused one major disaster (five persons being killed), says a recent issue of the safety letter from National Safety Council. This gives the mines of the United States an unprecedented record as to the occurrence of major explosion disasters, there having been but one in over one and one-half years, the last one being in Pennsylvania in September, 1933, with 7 deaths, the next previous one having been in Illinois in 1932, with 53 fatalities. Coal mining history reveals nothing that even approximates this record of avoidance of major explosion disasters in the mines of the United States.

Wyoming, with a bad past record as to major explosions, has not had one in nearly 10 years; Colorado, with anything but a good past record, hasn't had a major explosion disaster in over 7 years; Utah hasn't had one for over 4 years; and Oklahoma has avoided them for over 3½ years; Alabama, with a bad past and with numerous dangerous mines, has avoided major explosions for nearly 3 years; and West Virginia, with its vast number of coal mines, some of them decidedly dangerous because of gas or dust, or both, hasn't had a major explosion disaster since November, 1931, or nearly 3 years; Pennsylvania anthracite mines, with about one-fifth of the coal miners of the United States and with some of the mines steeply pitching and gassy, hasn't had a major explosion disaster since May 29, 1931, or over 3 years; and Pennsylvania bituminous, with about one-fourth of the coal miners of the Union and with scores of dangerously gassy and dusty mines, has had but one major explosion disaster since March, 1929, or considerably over 5 years (and in the one major explosion, which occurred in September, 1933, but 7 persons were killed).

SHELBY D. DIMMICK, 47, died June 16, of an infection resulting from an injury to his leg in an automobile accident. He had risen from a slate picker at 16 to become general manager of the Glen Alden Coal Company at 34, and a well-known figure in the anthracite field. As potentate of Irem Temple, Mr. Dimmick was prominently identified with Masonic affairs in Pennsylvania. Surviving are his widow, five children, two brothers, and a sister.

THE CODE AUTHORITY of the Manganese Industry has submitted for the Administrator's approval a budget of $1,100 for the period from June 15 to September 15, 1934. It is proposed that this budget be financed by voluntary subscriptions on the basis of $100 per member. Criticisms, objections, or suggestions were submitted to Deputy Administrator W. A. Janssen, Room 3323, Department of Commerce Building, prior to July 9, 1934.

Winners of the National Safety Competition For 1933

The winners of the National Safety Competition of 1933, in which recognition was given to notable safety records attained during the calendar year 1933 by numerous mines and quarries, were announced today by Scott Turner, director, United States Bureau of Mines, which sponsored the contest. Three hundred and thirty-two mines and quarries in 35 states participated in the competition, and outstanding accomplishments were achieved in the operation of mines and quarries without accidents or with quite low accident rates in 1933. The competing companies were divided into five classes: anthracite mining companies, bituminous-coal mining companies, metal mining companies, operators of nonmetallic mineral mines other than coal mines, and quarries or open-cut mines. A replica of the bronze trophy, "Sentinels of Safety," donated by the *Explosives Engineer* magazine, was awarded to the winning company in each group.

In the anthracite mining group, the winner was the Stillwater mine, in Wayne County, Pa., operated by the Hudson Coal Co. This mine was operated for 372,304 man-hours in 1933 with but 20 lost-time accidents, causing 230 days of disability.

In the bituminous-coal-mine group, the highest award was given to the "B" mine, Superior, Wyo., operated by the Union Pacific Coal Co., which was worked through 187,888 man-hours in 1933 without a lost-time accident.

Of the metal mines competing, the winner was the Burra Burra copper-ore mine, of the Tennessee Copper Co., Ducktown, Tenn., which was operated 303,075 man-hours in 1933 without a lost-time accident.

In the nonmetallic mineral group, first place was given to the Retsof rocksalt mine, of the Retsof Mining Co., Retsof, N. Y., which was operated through 265,120 man-hours in 1933 without a lost-time accident. This mine also was given the highest award in this group in 1929, 1931, and 1932.

In the group composed of quarries and open-cut mines, the winner was the Rogers City limestone quarry, Rogers City, Mich., operated by the Michigan Limestone and Chemical Company, which worked 595,416 man-hours in 1933 with no lost-time accidents. This quarry also was given the highest award in this group in 1929 and 1932.

Honorable mention was given, in the anthracite mining group, to the following-named operations:

Highland No. 2 mine, Freeland, Pa., operated by the Jeddo-Highland Coal Co.

Highland No. 6 mine, Freeland, Pa., of the Jeddo-Highland Coal Co.

Tomhicken mine, Sugarloaf, Pa., operated by the Coxe Brothers & Co., Inc.

Salem Hill mine, Pottsville, Pa., operated by the Haddock Mining Co.

In the bituminous-coal-mine group, the following-named mines received honorable mention:

Arno mine, Arno, Va., operated by the Stonega Coke & Coal Co.

Alloy mine, Alloy, W. Va., of the Electro Metallurgical Co.

Princewick mine, Beckley, W. Va., of the C. C. B. Smokeless Coal Co.

Vulcan mine, Pike Co., Ky., operated by the Vulcan Colliery of the Norfolk & Western Railway Co.

Somerset No. 1 mine, Somerset, Colo., of the Calumet Fuel Co.

Honorable mention was given to the following-named mines in the metal mining group:

Eureka-Asteroid iron-ore mine, Ramsay, Mich., of the Castile Mining Co.

Townsite iron-ore mine, Ironwood, Mich., of the Republic Steel Corp.

Zenith iron-ore mine, Ely, Minn., of the Vermillion Mining Co.

James iron-ore mine, Iron River, Mich., of the James Mining Co.

Among the nonmetallic mines the following were honorably mentioned:

Independence limestone and shale mine, Independence, Mo., operated by the Missouri Portland Cement Co.

Wampum limestone mine, Wampum, Pa., of the Crescent Portland Cement Co.

Crystal City sand mine, Crystal City, Mo., of the Pittsburgh Plate Glass Co.

Gardners' white-clay mine, Mt. Holly Springs, Pa., of the Medusa Portland Cement Co.

Akron gypsum mine, Akron, N. Y., of the Universal Gypsum & Lime Co.

Columbia No. 3 limestone mine, Valmeyer, Ill., of the Columbia Quarry Co.

In the group comprised of quarries and open-cut mines, the following-named operations were given honorable mention. All of these mines or quarries operated without a loss-time accident in 1933:

Billmeyer limestone and dolomite quarry, Billmeyer, Pa., of the J. E. Baker Co.

Inland limestone quarry, Manistique, Mich., of the Inland Lime & Stone Co.

Krause No. 1 limestone quarry, St. Clair County, Ill., of the Columbia Quarry Co.

Mesabi Chief iron-ore mine, Keewatin, Minn., of the Hanna Ore Mining Co.

Cape Girardeau limestone quarry, Cape Girardeau, Mo., of the Marquette Cement Manufacturing Co.

Ruegg limestone quarry, Ruegg, Mo., of the Missouri Portland Cement Co.

Bethlehem limestone quarry, Bethlehem, Pa., of the Bethlehem Mines Corp.

Hanover limestone quarry, Hanover, Pa., of the Bethlehem Mines Corp.

Winnfield limestone quarry, Winnfield, La., of the Southern Mineral Co.

No. 3 cement-rock quarry, Coplay, Pa., of the Coplay Cement Mfg. Co.

Susquehanna iron-ore mine, Hibbing, Minn., of the Republic Steel Corp.

Blue Mt. serpentine-stone quarry, White Hall, Md., of the J. E. Baker Co.

Danube iron-ore mine, Bovey, Minn., of the Balkan Mining Co.

Bridgeport limestone quarry, Bridgeport, Pa., of the Bethlehem Mines Corp.

Plymouth iron-ore mine, Wakefield, Mich., of the Plymouth Mining Co.

Bennett iron-ore mine, Keewatin, Minn., of the Bennett Mining Co.

Naginey limestone quarry, Naginey, Pa., of the Bethlehem Mines Corp.

Geneva limestone quarry, Oaks Corners, N. Y., of the General Crushed Stone Co.

Sagamore iron-ore mine, Riverton, Minn., of the Sagamore Ore Mining Co.

Nos. 5 and 6 limestone quarries, Martinsburg, W. Va., of the North American Cement Corp.

Union limestone and dolomite quarry, Mt. Wolf, Pa., of the J. E. Baker Co.

Union iron-ore mine, Virginia, Minn., of the Republic Steel Corp.

Ormrod cement-rock quarry, Ormrod, Pa., of the Lehigh Portland Cement Co.

Scranton iron mine, Hibbing, Minn., of the Hoyt Mining Co.

No. 6 limestone and cement-rock quarry, Nazareth, Pa., of the Pennsylvania-Dixie Cement Corp.

No. 7 sandstone quarry, Amherst, Ohio, of the Cleveland Quarries Co.

West Conshohocken cement-rock quarry, West Conshohocken, Pa., of the Valley Forge Cement Co.

Akron limestone quarry, Akron, N. Y., of the General Crushed Stone Co.

Mason City limestone and clay quarry, Mason City, Iowa, of the Lehigh Portland Cement Co.

Auburn limestone quarry, Auburn, N. Y., of the General Crushed Stone Co.

East Fultonham limestone quarry, East Fultonham, Ohio, of the Pittsburgh Plate Glass Co.

Albany iron-ore mine, Hibbing, Minn., of the Crete Mining Co.

Mitchell limestone quarry, Lehigh Lime Company, Lawrence County, Ind., of the Lehigh Portland Cement Co.

Speed limestone quarry, Speed, Ind., of the Louisville Cement Co.

Newington trap-rock quarry, Newington, Conn., of the Edward Balf Co.

Brooksville limestone and clay quarry, Brooksville, Fla., of the Florida Portland Cement Co.

Stringtown blue-limestone quarry, Stringtown, Okla., of the Southwest Stone Co.

Conway granite quarry, Conway, N. H., of the Maine & New Hampshire Granite Co.

San Vicente limestone quarry, Davenport, Calif., of the Santa Cruz Portland Cement Co.

Middlefield No. 1 trap-rock quarry, Middlefield, Conn., of the Connecticut Quarries Co., Inc.

Pembroke limestone quarry, Pembroke, Va., of the Pembroke Limestone Corp.

Union Furnace limestone quarry, Tyron, Pa., of the American Lime & Stone Co.

Stockertown cement-stone quarry, Stockertown, Pa., of the Hercules Cement Corp.

Birmingham limestone quarry, Birmingham, Ala., of the Lehigh Portland Cement Co.

Richard City limestone quarry, Richard City, Tenn., of the Pennsylvania-Dixie Cement Corp.

Lime plant limestone quarry, Thomaston, Me., of the Lawrence Portland Cement Co.

Greencastle limestone quarry, Greencastle, Ind., of the Lone Star Cement Co., Indiana, Inc.

No. 6-X sandstone quarry, Amherst, Ohio, of the Cleveland Quarries Co.

Union Bridge limestone quarry, Union Bridge, Md., of the Lehigh Portland Cement Co.

Martin's Creek No. 4 cement-rock quarry, Martins Creek, Pa., of the Alpha Portland Cement Co.

Hillsville limestone quarry, Hillsville, Pa., of the Union Limestone Co.

Catskill limestone quarry, Catskill, N. Y., of the Alpha Portland Cement Co.

Nazareth cement-rock quarry, Nazareth, Pa., of the Lone Star Cement Co., Pa.

Lone Star limestone quarry, Greenport, N. Y., of the Lone Star Cement Co., New York, Inc.

Fordwick limestone quarry, Fordwick, Va., of the Lehigh Portland Cement Co.

Fogelsville limestone quarry, Fogelsville, Pa., of the Lehigh Portland Cement Co.

Cheshire No. 6 trap-rock quarry, Cheshire, Conn., of the Connecticut Quarries Co., Inc.

Petoskey limestone quarry, Petoskey, Mich., of the Petoskey Portland Cement Co.

A Modern Coal Preparation Plant

(*Continued from page* 27)

Three 18-inch units for the ¼ inch material.

It might be noted that it was not originally intended to treat 3-inch coal, the limit of size being assumed to be 2 inches, but these machines have handled the 2 by 3 inch size without difficulty and have enabled the coal company to remove six or seven pickers from the Marcus screen. This saving in itself has helped offset the cost of operating the tipple and cleaning plant.

The three products of each of the recleaning units can be handled in several different ways: The middlings and refuse, or the refuse alone, can be discarded to the refuse bin and the clean coal delivered to the clean coal conveyor, or the middlings alone can join the clean coal at the clean coal conveyor, or it can be by-passed and returned to the raw coal feed. The quality of the clean coal desired determines the process of disposing of these products. At the present time the plant is producing a clean run-of-mine coal of approximately 6 to 6.30 ash and 1.50 to 1.60 sulphur of mixed coals from the two mines, with a rejection of 4 percent by actual scale weights of refuse.

The refuse from the 3-inch lump pickings in the tipple is delivered by chutes to shaker trough actuated by the Marcus screen, which delivers this refuse to a separate pickings bin in the tipple. All refuse, from both tipple and cleaning refuse bins, is hauled by trucks to refuse disposal dump.

Regarding the air supply of the stump air-flow units, it was found more economical to install plenum chambers behind the units instead of separate fans for each unit. Air for each unit is drawn from these plenum chambers through the medium of the flutter valves, which are so hooked up that no two valves are drawing at once on the supply of air in the plenum chamber. There is:

One plenum chamber furnishing the air to the primary 3 by ¾ inch and ¾ by ¼ inch units.

One plenum chamber for the primary ¼ by 0 inch units.

One plenum chamber for furnishing air for the five recleaner units.

Each plenum chamber has its separate fan.

The dust from all of the units and the dust from the Ro-Sieve screens is collected and delivered to two Day Collectors.

The entire structure is of steel, the only wood used being in the floors. Ample windows and skylights are provided, and all machinery is of either V-belt drive or speed-reducer units with automatic lubricating systems. All electric equipment is of Westinghouse make and design.

As a matter of interest, the actual load of the entire cleaning plant, including dust collection, is slightly over 1 horsepower per ton of coal cleaned.

The total air required for all cleaning units is 100,000 cubic feet per minute for the tonnage of 400 tons per hour.

Attention may be called to the simplicity of elevating and conveying machinery in this installation. One raw coal conveyor, one clean coal conveyor, one middlings and refuse conveyor, one middlings coal elevator, and one final refuse elevator cover all the large moving parts for a tonnage of 400 plus per hour. The entire cleaning plant requires only two men for operation, and seems to be about as simple and economical as could be designed for the coal company's tonnage and conditions.

A Challenge to American Business

(*Continued from page* 12)

only to chambers of commerce, but to colleges and universities and all agencies of public education. The necessity is deeper than ever that the doctrine of economic and political democracy should be practically taught in terms of living reality in the schools and colleges of the land, so that when our boys and girls go out, they go out imbued with the conviction that our American system can be made to work, can be shaped to carry on. It is not Fascism nor communism nor the autocracy of the super-man, or any other system of law and authority, that, as I see it, is needed to bring fulfillment to the promise of American economic life. We ought to be through with the idea that new systems, new doctrines, are the goal. We should be through with defenses that do not defend. The defenses that avail are the human defenses, the chief of which is a human recognition on the part of American business men of the new spirit of the age.

It is probable that we shall save political democracy only through a wide extension of industrial goodwill and right dealing and a reasonable sharing of economic power and goods among all classes. And political democracy is worth saving. As between any form of autocracy—Fascist, Bolshevist or Nazist—on the one hand, and democratic self-government on the other hand, it is well to recall the dictum of old Fisher Ames of New England 100 years ago. Staunch Federalist that he was, he distrusted the democratic movement of his time, but he faced it with a mellow philosophy.

"Autocracy," said he, "is like a merchantman. She sails out of the harbor with pennants flying, in security and elation. But by and by she strikes a reef and down she goes. Democracy," said he, "is like a raft. You never sink, but damn it, your feet are always in the water."

WILLARD E. HOTCHKISS, president of the Armour Institute of Technology, Chicago, has been appointed by the NRA to take charge of NRA'S Research and Planning Division's fact-finding on disputed interdistrict bituminous coal wage differential problems. These were left unsettled last April when most wage scales under that code were determined.

A long-time expert in labor relations and mediation work, Hotchkiss was secretary of the President's Industrial Commission in 1920; in charge of industrial relations on the research staff of the U. S. Coal Commission in 1923; wartime secretary of the Shipbuilding Labor Adjustment Board; and from 1920 to 1926 also served as executive director of the National Federation of Clothing Manufacturers. The Fairmont and Smokeless districts are foremost among those where interdistrict wage differential problems are to be adjusted.

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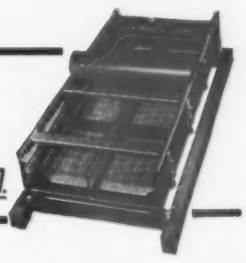

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HAVE YOU HEARD?

NEARLY A HUNDRED THOUSAND individuals have been added to Uncle Sam's official pay roll since March, 1933. Some twenty thousand of these have been added in Washington, D. C. Government expansion has required, in addition to the huge buildings erected under the Hoover administration, the payment of more than a million and a half a year in rentals. A new building project authorized contemplates the erection of a building to cost ten million dollars.

STATISTICIANS ARE BUSY calculating the damage done by the San Francisco strike; they estimate that workers lost 2,270,000 working days; this involves 27,940 workers who were idle 68 days.

COLLECTIONS OF PROCESSING and compensating taxes to June 30, 1934, amounted to $353,048,796, while expenditures for AAA were $317,247,464, which shows collections above expenditures approximately thirty-six million dollars.

EARNING STATEMENTS of the 30 leading industrial corporations for the first half of 1934 show an aggregate expansion of 68 percent in earning power over same period last year. Profits increased 41 percent.

CONSTRUCTION RECORDS for 37 Eastern States for June represented a gain of 24 percent over same period of 1933, according to Dodge Corporation.

GEN. HUGH S. JOHNSON, forceful NRA Administrator, in commenting on the San Francisco strike said: "It is not good business, it is not good Americanism; it is merely madness to say that any set of our people cannot sit down around a table without violence and bloodshed. * * * Strikes are a necessary evil, but like wars, they never got anything for anybody, unless it was bloodshed and black eyes."

WILLIAM GREEN, president, American Federation of Labor, says that he sees no need of an anthracite code since the wage agreement between miners and operators is a code in itself, which does not expire until 1936.

ACCORDING TO copyright A. P. dispatch, Federal Government will take a hand in meat-canning industry as relief measure. Plan includes wide use of Federal funds to assist states in setting up meat-canning plants over country, with suggestions also for plants to can vegetables, fruit, and fish on sizeable scale.

PWA APPROPRIATIONS of approximately four billion dollars is virtually depleted. Expenditures are running above $30,000,000 a week, providing employment for 1,800,000. Additional funds are to be asked for by Mr. Ickes.

PRESIDENT ROOSEVELT has established in the Public Works Administration, a National Power Policy Committee, to make a thorough study of the whole problem of utility holding companies and interstate power use.

SENATOR C. C. DILL'S announced plan for retirement has brought up the question of his possible successor as chairman of the Senate Interstate Commerce Committee. Two candidates are mentioned: Senator Burton K. Wheeler, Democrat, Montana, and Senator Ellison D. Smith, South Carolina, ranking member of the committee. The Wheeler appointment was said to be entirely likely.

LEADING STEEL COMPANIES have refused the demands of the Amalgamated Association of Iron, Steel and Tin Workers for recognition of that union. The companies point out that they have employe representation plans which are satisfactory to operators and workers.

HOME OWNERS LOAN CORPORATION has loaned $51,911,690 to 17,510 applicants, during the week ending June 30. Total loans of $1,027,991,565 have been made since creation of the corporation June 13, 1933. Average loan is $3,013. Approximately a million and a half applications have been received.

TOTAL TAXES IN 1934, Federal, state and local, will amount to $9,000,000,000, according to William Fortune, member of the U. S. Chamber of Commerce's Tax Committee.

WILLIAM E. SWEET, Chief of the Educational Section of the Public Relations Division of NRA, states that "in the future, under the New Deal, employers will be forced by law to provide some measure of economic security for the worker." Mr. Sweet was former governor of Colorado.

TAXES ASSESSED in 1934 will absorb some 20 percent of our national income.

TREASURY DEPARTMENT, in announcing progress in its building program, which involves expenditure of $163,000,000, estimates that most of its 900 projects will be completed or under way by winter. One hundred ninety-three new structures, largely post offices, involving an outlay of $52,000,000, is announced as being well along.

CHESAPEAKE AND OHIO RAILWAY has placed order with General American Transportation Corporation for 2,250 steel coal cars, and construction has begun. Order involves $6,000,000.

SOUTHERN ASSOCIATION of Steel Buyers and Consumers has demanded immediate relief from the "Pittsburgh plus" system of fixing the base price for steel products.

SKILLINGS MINING REVIEW (issue of July 28) will feature the Vermillion Iron Range of Minnesota, and the Gogebic Range of Michigan, in commemoration of their semi-centennial as shippers of iron ore.

ONE-THIRD OF the world requirement of bismuth is furnished by the Cerro de Pasco Copper Company.

GEN. HUGH S. JOHNSON, in an article in the *American Magazine*, says "The bituminous coal code has saved an industry. It has saved the labor in an industry. It is a model to both management and labor in any industry, and it is the finest product of NRA."

MONSIGNOR JOHN AUGUSTINE RYAN, professor of social ethics at the Catholic University's School of Social Service since 1921, has accepted membership on the Industrial Appeals Board.

NATIONAL HEADQUARTERS of the United Mine Workers of America were moved to Washington from Indianapolis on July 1. The new quarters are the entire seventh floor of the Tower Building. The move was made necessary by the increasing importance of governmental agencies in labor affairs. Both the A. F. of L. and U. M. W. are now in Washington.

IT IS NOW estimated that the Tennessee Valley Authority project under way by the Government will call for an expenditure of $310,000,000, compared with the $50,000,000 originally intended. If similar projects are carried out as now contemplated, the cost to Government may exceed a billion dollar total.

MERCURY is responsible for a new light source that is expected to exert considerable influence on artificial lighting practice, according to the Westinghouse Electric & Mfg. Co., which has developed a "high pressure mercury lamp."

PERSONALS

G. W. Lambourne, president and general manager of the Park Utah Consolidated Mines Company, has been appointed as a member of the Lead Code Authority.

Herbert B. Baird has been elected vice president of the Koppers Coal and Transportation Company, Koppers Coal Company, and Castner, Curran and Bullitt, Inc. Mr. Baird was formerly with the Berwind-White Coal Mining Company.

T. J. O'Brien, president, Kemmerer and Gunn-Quealy Coal Companies, has been elected president, Southern Wyoming Coal Operators Association.

Albion S. Howe, for many years manager of Central Eureka Mining Company, of Sutters Creek, Calif., has retired from active management.

Among those who attended the special meeting of the Program Committee for the Western Division, the American Mining Congress, by invitation of **W. Mont Ferry**, serving as national chairman, were: **J. O. Elton**, International Smelting Company; **E. A. Hamilton**, United States Smelting, Refining & Mining Company; **W. Val Decamp**, Cardinal Gold Mining Company; **J. G. Clark**, Tungsten Production Co., Inc.; **Henry M. Rives**, Nevada Mine Operators Association; **R. S. Palmer**, Colorado Mining Association; **F. A. Thomson**, Montana School of Mines; and **Dr. D. A. Lyon**, University of Utah.

V. P. Geffine, Cleveland Cliffs Iron Company, was a Washington visitor early in July.

Horace M. Albright, United States Potash Company, was in Washington July 20.

Howard Perry, Chisos Mining Company of Texas, and a member of the Quicksilver Code Authority, was a recent eastern visitor.

C. J. Sandoe, West Virginia Coal Company of Mo., stopped in Washington, en route to his home from a vacation trip through Canada.

Frank R. Frost, president, Superior Steel Corporation, and **E. L. Parker**, president, Columbia Steel Company, have been elected to the board of directors, the American Iron and Steel Institute.

E. E. Ellis, vice president, United States Steel Company, recently completed his annual inspection trip to his company's properties on the Mesabi Range. He was accompanied by **Thomas Moses**, president, H. C. Frick Coke Company; **MacGilvary Shiras**, Carnegie Steel Company; and **John G. Munson**, president, Michigan Limestone & Chemical Co.

Kenneth C. Brownell, American Smelting & Refining Company, is in Europe on business for his company.

Carroll B. Huntress, president, Appalachian Coals Inc., addressed the annual meeting of the National Retail Coal Association, recently held in Washington. He was also guest of honor at the Toronto meeting of the Canadian retailers.

George Gordon Crawford, formerly president, Tennessee Coal, Iron & Ry. Co., has resigned as the executive head of Jones & Laughlin Steel Company.

Samuel E. Hackett has been elected president of the Jones & Laughlin Steel Company.

Stanley C. Higgins, secretary of the New River Coal Operators Association, was injured severely in an automobile accident, early in June.

C. M. Chaplin, formerly associated with the Pocahontas Coal Sales Company, Cincinnati, Ohio, has resigned to become affiliated with Appalachian Coals Inc., and will be identified with its marketing division. He takes the place left vacant by W. W. Wilshire, who has assumed other duties in the organization. Mr. Chaplin was chairman of the committee from the Cincinnati Coal Exchange, to welcome delegates to the May meeting of the Coal Division, the American Mining Congress.

C. H. Segerstrom

President, Carson Hills Gold Mining Co., recently returned to California after an eastern trip. He is taking an active interest in the development of the Western Division Convention of the American Mining Congress

"Coal—the Modern Geni," was the interesting title of the address delivered to the National Association of Purchasing Agents by **Robert E. Howe**, secretary, Appalachian Coals, Inc.

William Emery, Jr., of Cleveland, president, Northern Coals, Inc., recently delivered an address on "The Bituminous Coal Code from the Producer's Standpoint," before the National Association of Purchasing Agents.

Stuyvesant Peabody, president, Peabody Coal Company, Chicago, announces that the Peabody Coal Company and the Public Utilities group have worked out a plan of separation which will be a satisfactory adjustment of their difficulties, which returns control of the properties to the coal company.

W. Mont Ferry, chairman of the Program Committee, Western Division, The American Mining Congress, on July 6, held final meeting of his committee, for the purpose of developing the program for the annual meeting of the division.

Henry M. Rives, secretary, Nevada Mine Operators Association, has been appointed special assistant to Mr. W. S. Boyd, national chairman, Western Division, The American Mining Congress, in matters relating to the September meeting of the Division.

NEWS OF MANUFACTURERS

A NEW LINE of direct-current motors, designed for those applications where dust, dirt, moisture, or other foreign matter is present in large quantities, has been introduced by the General Electric Company. The new motors are totally enclosed and fan-cooled, and are available in a wide variety of electrical and mechanical modifications—in sizes from ½ to 200 hp.

A NEW 16-page copiously illustrated catalog No. 1595 on Locomotive Cranes has recently been completed by Link-Belt Company, Chicago, Philadelphia. Tables of clearance dimensions and rated lifting capacities are given for machines for operation by either a gasoline, Diesel, electric, or steam driven power unit. It is stated that locomotive cranes have been a product of this company for the past 35 years. The book includes not only standard gauge machines but also cranes for operation on wide gauge tracks and for use at radii as large as 110 feet.

A copy of the new book will be sent to anyone requesting it on business letterhead.

RECENTLY off the press is a 16-page illustrated Catalog No. 1462, published by Link-Belt Company, Philadelphia, Chicago, San Francisco, devoted to its line of vibrating screens for the effective screening of such material as sand, gravel, stone, coal, coke, clay, fertilizer, cement, etc. Unbalanced-pulley as well as positive drive types of screens are covered, including a positive drive screen for operation at a flat angle, making it suitable for use in places where the headroom is limited. Several types of dust enclosures are included, with dimensions for laying out an installation. Numerous typical installations are shown.

A copy of the new book may be had by addressing the company on business letterhead.

A NEW polehead for mining locomotive for use on long and heavy hauls where currents are beyond the range of wheel-type collectors is described in a new leaflet entitled Type MS-600 Mining Trolley Polehead. The publication describes the application, distinctive features, construction and dimensions of this polehead.

Copies of the publication may be obtained from the nearest district office or direct from the advertising department, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

THE LINDE AIR PRODUCTS COMPANY, 30 East 42nd Street, New York, N. Y., has just announced a new Oxweld generator, known as the Oxweld Type MP-4 Portable Acetylene Generator. It is intended for portable service only, and is specially designed to withstand the abuse encountered in such service, particularly in overland pipe construction. Having a carbide capacity of 150 pounds, it will be of great service wherever large scale welding operations must be carried out in the field. The capacity of this new generator is 150 pounds of ¼ by 1/12 inch (quarter size) carbide. The generator is listed as standard by the Underwriters' Laboratories, Inc. It is rated to produce 300 cubic feet of acetylene per hour. It weighs 750 pounds empty, is 87 inches over all in height, and 42¾ inches in diameter. Fully charged, the generator weighs 2,250 pounds.

INGERSOLL-RAND'S recently issued bulletin No. 2096 covers the Calyx Core Drill—a drill for boring small or large cores for exploration or other purposes. The Class W Calyx Drill described in the new bulletin will bore a core 2½ inches in diameter, 2,500 feet deep, accurately revealing the exact nature of the rock structure. It will bore larger cores, up to 34½ inches in diameter, 200 feet deep, for ventilation, dewatering, and backfilling of stopes in mines; for water wells and hydraulic elevator shafts in large buildings; for underpinning of existing building columns; for setting tubular steel piles in rock formation, etc. The drill is also used for exploring oil field structure with fish tail and core bits.

A copy of the bulletin may be obtained from Ingersoll-Rand, 11 Broadway, New York, or any branch.

THE GARDNER-DENVER CO., Quincy, Ill., has issued a new bulletin HAC-36 illustrating and describing its duplex two-stage horizontal compressors. Copies may be secured from the Quincy office or any of the company's branch offices.

THE LEHIGH VALLEY Railroad has placed an order with The Timken Roller Bearing Company, Canton, Ohio, for roller bearings to be used on all axles, including driving axles, of two class 4-8-4 large high-speed steam locomotives. The Lehigh Valley Railroad has also placed an order with The Timken Company for roller bearings to be used under engine trucks of five locomotives. The locomotives will be built by the Baldwin Locomotive Works, Philadelphia, Pa.

RESEARCH looking toward improving the quality of copper alloy castings is being sponsored by the Falcon Bronze Company of Youngstown, Ohio.

This research project which will be conducted at Battelle Memorial Institute, Columbus, Ohio, was announced today by Dr. H. W. Gillett, director, who has designated C. H. Lorig to take charge of the project.

A NEW AUTOMATIC step-voltage regulator, particularly applicable for maintaining constant voltage on suburban and rural circuits of 4,800 volts or more, and for regulating low-voltage high current city distribution feeders where the service will permit, is announced by the Westinghouse Electric and Manufacturing Company.

THE TWIN LAKES TUNNEL at Independence Pass, Colo., is progressing at a satisfactory rate, according to Mr. Platt Rogers, who is supervising the work. The total distance driven as of June 1 was 4,361 feet on the east portal and 3,434 feet on the west portal. This is the first transmountain water diversion project in the West. The elevation of the tunnel is 9,050 feet and when completed the tunnel will be 3.7 miles long. It is being driven to provide irrigating water for the farm lands at Ordway, Colo. Sullivan Machinery Company's three-drum scraper hoists and O'Rourke switches are used for mucking. The diameter of the tunnel is 9 feet 2 inches It will develop 60,000 acre-feet of water per year. A world record for tunnel driving in a single heading in one day of 24 hours made 48 feet.

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Romantic Copper*— Its Lure and Lore

The word "romantic" may not, perhaps, be the adjective that would be selected at the present time by those in the copper trade who have been beset by the myriad difficulties of establishing a satisfactory code of fair competition for the industry, nor for that matter is it the adjective that would be selected by consumers who were affected by the fluctuations of the metal from the high of 23.87½ cents per pound in 1929 to the low of 4.87½ cents per pound in 1933.

Nevertheless the story of copper, written under the above title by Ira B. Joralemon, is an absorbing tale of the discovery and development of the copper mines of the world.

It is a chronicle of greed, ambition, and miraculous discoveries, of comic rivalries and tragic failures, of steady scientific progress and the battles of the pioneers of the industry, such as Senator Clark, Augustus Heinze, and Marcus Daly in America, and Leopold of Belgium and Cecil Rhodes in Africa.

The opening chapters deal with the ancient history of copper, specifically the mines of Cyprus, and in rapid chronological order the story of the developments in the Spanish, American, South American, and South African fields is told.

The chapters of particular interest to the members of the American copper trade are those which deal with the American phase of the story which leads inevitably to the sensational development of Butte, "the richest hill on earth."

The author, a consulting engineer and geologist, was for a period of 10 years with Calumet and Arizona Mining Company in the Bisbee district of Arizona, and later his consulting work brought him in direct contact with other mines of North and South America.

The most encouraging note struck by the author is in a closing paragraph, wherein he predicts that when the gates of prosperity once more swing open, as they have so often done in the past, unsold stocks of copper that seem so great will vanish before the miners realize what is happening.

* Published by D.-Appleton Century Company, New York and London; price $3.

Wardner Mining District

BRITISH EXPORTS of coal during May were slightly in excess of those for May, 1933, according to a report to the Commerce Department from Trade Commissioner James Somerville, Jr., London. Combined shipments of coal as cargo and as bunkers during the month totaled 4,804,000 tons.

Exports of British coal as cargo in May totaled 3,647,927 tons, a decrease of 22,500 tons compared with May, 1933, while exports of coal as bunkers on vessels engaged in foreign trade totaled 1,158,258 tons, an increase of 65,000 tons over the corresponding figure of the year preceding.

As has been the case for some time past, British coal export figures for May showed continued improvement in shipments to countries with which the 1933 trade agreements were concluded, the most important increases being as follows: 72,000 tons to Germany, 56,000 tons to Norway, 41,000 tons to Sweden, 29,000 tons to Denmark, 27,000 tons to Finland, 31,000 tons to Argentina, and 20,000 tons to Canada. On the other hand, exports to France decreased by 117,000 tons compared with the May, 1933, figure, and exports to Italy decreased 74,000 tons. Other countries showing decreases were the Irish Free State, 40,000 tons; Belgium, 45,000 tons; and Brazil, 21,500 tons.

PRODUCTION of copper from domestic ore declined 17 percent in 1933 from the output in 1932, the Bureau of Mines reports, and was little more than the output for 1931.

The 1933 output amounted to only 33 percent of the average for the five-year period 1928 to 1932. Copper production by mines in 1933 decreased about the same percentage of smelter output, but refinery production from domestic ores showed an increase of 8 percent.

The average price of copper delivered in 1933 was slightly above that for 1932, which was the lowest price ever recorded. The average price per pound in 1933 was 6.4 cents, compared with 6.3 cents in 1932.

Smelter output for 1933 stood at 449,999,143 pounds, compared with 544,009,948 pounds for 132. Stocks of refined copper declined from 1,004,000,000 pounds in 1932 to 813,000,000 pounds in 1933. Value of smelter production declined from $34,273,000 in 1932 to $28,800,000 in 1933. Arizona led all the states in copper production with 122,697,035 pounds in 1933, compared with 201,136,276 pounds in 1932.

THE National Recovery Administration has recognized the following as members of the Code Authority for the Quicksilver Industry:

Members selected from the executive committee, National Quicksilver Producers Association.—H. W. Klipstein, vice president, Anglo-American Mining Corp., Ltd., Mills Bldg., San Francisco, Calif.; W. R. Moorehead, general manager, Idria Quicksilver Mines, Inc., Merchants Exchange Bldg., San Francisco, Calif.; F. A. Hammersmith, secretary-treasurer, Treadwell Yukon Co., Ltd., 920 Crocker Bldg., San Francisco, Calif.; H. W. Gould, H. W. Gould & Co., Mills Bldg., San Francisco, Calif.; C. N. Schuette, independent mining engineer, 306 Call Bldg., San Francisco, Calif.

Secretary, National Quicksilver Producers Association.—Irving Ballard, 560 Sacramento St., San Francisco, Calif.

Members of industry (not members of executive committee).—Noel H. Stearn, president, Southwestern Quicksilver Co., 1226 Olive St., St. Louis, Mo.; H. E. Loufek, general manager, Castle Park Quicksilver Mine, 237 East Plaza St., Reno, Nev.

Nonassociation member.—Howard E. Perry, Chisos Mining Co., care of Barclay Hotel, New York, N. Y.

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Here are some of the contributors and men of the Program Committee who selected and prepared most of the material appearing in the 1934 Yearbook.

C. M. LINGLE, *Vice-Pres.*, The Buckeye Coal Company.

C. W. GIBBS, *Genl. Mgr.*, Harwick Coal & Coke Company.

C. F. HAMILTON, *Vice-Pres.*, Binkley Coal Company.

C. W. CONNOR, *Supt. of Mines*, Nellis Coal Corporation.

D. A. REED, *Mgr. of Operations*, Consolidation Coal Company.

I. N. BAYLESS, *Asst. Genl. Mgr.*, Union Pacific Coal Co.

C. A. GIBBONS, *Genl. Mgr.*, Susquehanna Collieries Company.

E. J. CHRISTY, *Cons. Engineer*, The Wheeling Township Coal Mining Co.

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D. D. WILCOX, *Genl. Supt.*, Superior Coal Co.

T. F. MCCARTHY, *Genl. Supt.*, Clearfield Bituminous Coal Corp.

D. R. SWEM, *Mgr. of Operations*, Northwestern Improvement Company.

ARTHUR F. NESBIT, *Cons. Engr.*

E. H. JENKS, *Div. Engineer*, Rochester & Pittsburgh Coal Co.

A. B. JESSUP, *Vice-Pres.*, Jeddo-Highland Coal Co.

G. A. KNOX, *Supt.*, Gunn-Quealy Coal Co.

D. A. RUSSELL, *Chief Chemist*, Youngstown Sheet & Tube Co.

F. C. CAROTHERS, *Asst. to Mgr.*, Pond Creek Pocahontas Company.

ALL MEMBERS of the American Mining Congress are allowed a discount of 25% on the purchase of single copies.

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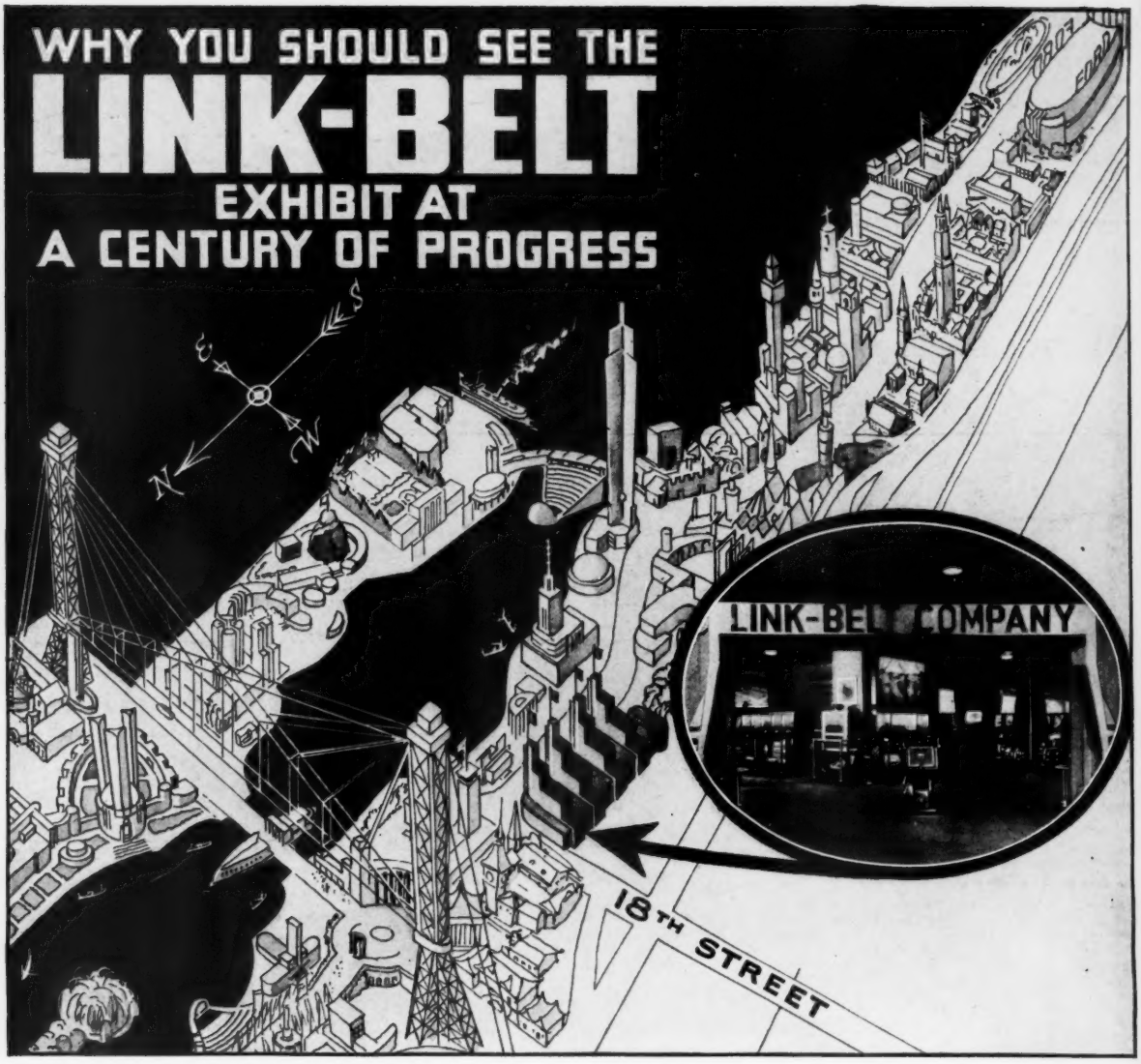

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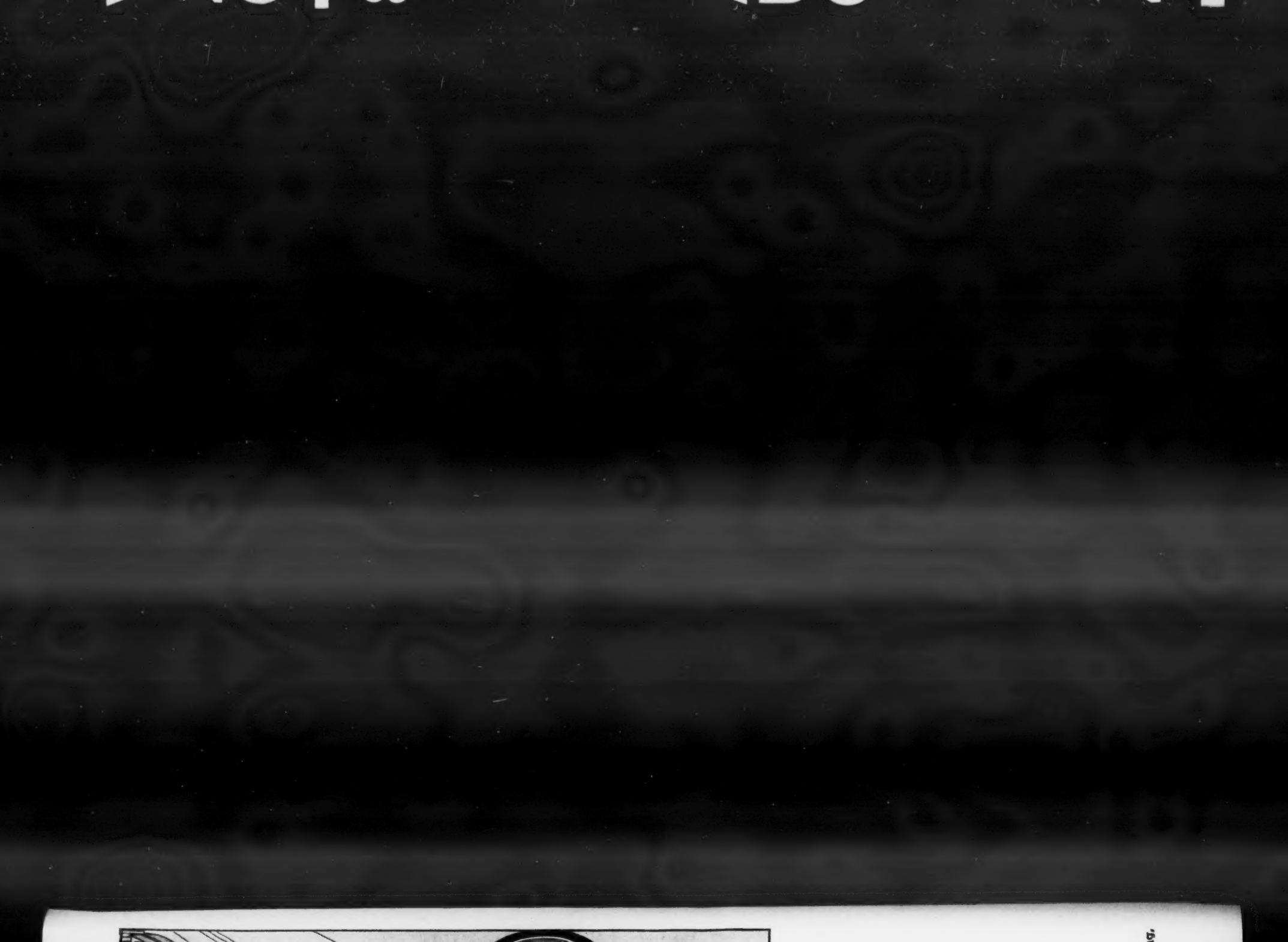
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